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THE NORWEGIAN-SOVIET BOUNDARY

A Study in Political Geography

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TABLE OF CONTENTS

List of Maps	iv
List of photographs	v
Abstract	vi

Area Discussed	1
Physical Conditions in the Boundary Region	2
Population	5
Significance of Mining	7
Historical Evolution of the U.S.S.R.-Norwegian Boundary	9
Finland-Norway Boundary	15
Russia Returns to the Pasvik Valley	18
Boundary at Boris Gleb	21
Boundary Administration	23
Finland and the New Boundary	29
Soviet Ownership of Petchenga Nickel	29
Subsequent relocation of Finnish-U.S.S.R. Boundary	30

Appendices

I	Selected Bibliography
II	Maps Consulted
III	Finnish, Lapp and Norwegian Place-names

LIST OF MAPS

1. Norwegian-Soviet Boundary, 1947.
2. Norwegian-Soviet Boundary, Population Distribution, 1950.
3. Salmijärvi and Nikkeli Area, 1951.
4. Norwegian-Soviet Boundary at Boris Gleb, 1947.
5. Norwegian-Soviet Boundary at Barents Sea, 1947.
6. Norwegian-Soviet Boundary at Grensefossen, 1947.
7. Jäniskoski area, Pasvik River Valley, Finland-U.S.S.R.

LIST OF PHOTOGRAPHS

Jarfjord. Coastal scene east of Kirkenes.
 Kirkenes. View of settlement looking north.
 Kirkenes. Iron-ore plant looking southwest.
 Bjørnevatn. Iron-mining village during reconstruction.
 Skogfoss. Rapids on Pasvik River looking from Norway
 towards Soviet Union.
 Skogfoss Inn. Looking from Norway across Pasvik River
 towards Soviet Union.

Note: Views showing U.S.S.R. territory were taken
 before restrictions existed on photography
 in the boundary area.

The following photographs which appear in Fennia,
 Vol. 49, 1929, are of places no longer accessible to
 the camera:

Plate 2, p. 2	Boris Gleb
Plate 3, p. 4	Kolttaköngäs (rapids)
Plate 7, p. 10	Salmijärvi
Plate 15, p. 24	Vaggatem
Plate 23, p. 37	Rajakoski
Plate 24, p. 38	Vuorjemi estuary, looking south.
Plate 25, p. 39	Vuorjemi estuary, looking north.
Plate 26, p. 40	Vuorjemi, cairn No. 363 (of 1924), looking north.

ABSTRACT

The present boundary between Norway and the Soviet Union was established by agreements between the two countries signed in 1947 and 1949. The line follows the former Norwegian-Finnish boundary, but was demarcated anew during a survey made in 1947.

In a region of otherwise severely limited human usefulness, the Pasvik valley through which much of the boundary line runs, includes good farmland, merchantable timber, and a river rich in fish and useful for floating lumber and for hydro-electric power sites. The two largest settlements in the valley have, however, been created to develop minerals, iron ore near Kirkenes in Norway and nickel near Salmijärvi in the U.S.S.R.

Apart from the problems to be expected when a navigable watercourse is used as an international boundary, the Pasvik River presents added difficulties because the Soviet Union controls both banks at Boris Gleb near its mouth. Near the southernmost point in the boundary, both banks are Norwegian territory.

The Norwegian-Soviet boundary is administered under the 1947 and 1949 agreements by boundary commissioners appointed by the two countries. Infraction of the numerous regulations may be dealt with by consultation between them.

Since 1945, when the Petsamo territory was ceded to the U.S.S.R., northern Finland had no direct access to the coast of Barents Sea. Unless a suitable overland route can be opened by way of the Pasvik valley, through Norway, or a road constructed farther west from the Inari Lake area to the Norwegian coast near Neiden, the continued development of Finnish Lapland by export of lumber and import of manufactures may prove difficult.

Area Under Discussion.

The Norwegian-Soviet boundary extends for 195.7 kilometres from Barents Sea in Lat. 69°47'N., Long. 30°50'E. to a monument at Krokfjell (Muotkavara) 6.5 km. west of the Pasvik River in Lat. 69°03'N., Long. 28°55'W. The boundary is a complex one, being made up of water courses for 152.8 km.--the Pasvikelv^{1/}

1/

The affix elv in Norwegian means "river."

and the Jakobselv--and of a series of straight lines for 42.9 km. The present boundary was established formally by an agreement between Norway and the Soviet Union signed at Moscow on December 28, 1947, and is administered under a second agreement between the two countries signed at Oslo on December 29, 1949.

The boundary is of unusual interest for several reasons. Its long history involves the territories of Norway, Sweden, Finland and Russia and has been complicated by the migration of nomadic Lapps^{2/} and by changing Norwegian sovereignty (in relation to

2/

The best studies of Lapp activities in the area are: Tanner, V., "Antropogeografiska Studier inom Petsamo-området, I Skolt-lapparna." *Fennia*, Vol. 49, No. 4, 1929. Vorren, Ørnuly, "Reindrift og Nomadisme i Varangertraktene." *Tromsø Museums Årshefter*, Vol. 69 (1946), No. 2, pp. 1-145.

Denmark and Sweden), Finnish sovereignty (in relation to Sweden and and Russia) and by revolutionary changes in the government of Russia. The boundary was also closely concerned in events at the end of the first World War, in the so-called "Winter War" between Finland and the Soviet Union (1939-40), in the Nazi occupation of Norway and Finland (1940-44), and the subsequent liberation of northeastern Norway and Finland by Soviet armies late in 1944.

The boundary region is significant for other reasons:- It contains valuable natural resources--especially iron ore and nickel. The Pasvik River has potential value for hydro-electric development, and for floating lumber northward toward a region where wood is scarce; The fishing is good and there are relatively fertile soils and a mild climate in the Pasvik valley whereas the surrounding area is generally unproductive. The river valley is the natural trade route between northern Finland and the open waters of Varanger Fjord.

Study of the region in the field is difficult because one cannot visit the Soviet side of the boundary. Norwegian-Soviet Treaty arrangements forbid the use of cameras within a kilometre of the line or photographing the Soviet side at all.^{3/} Good

3/ 1949 Agreement (Overenskomst med Fremmede Stater), Chap. 5, Article (b) 9. Photographs reproduced in this report were taken prior to the Agreement.

modern large-scale maps are not available.4/ The geographer is

4/ Maps on a scale larger than 1:25,000 may not at present be exported from Norway.

therefore at present prevented from providing a comprehensive picture of conditions in the Pasvik valley and Jakobselv valley.

This paper deals particularly with the historical evolution of the present international boundary line, its delimitation and demarcation on the ground, in 1947, together with comments on the economic resources of the Norwegian part of the Pasvik valley and some discussion of possible future developments in the area.

Physical Conditions in the Boundary Region.

The physical environment of the Petsamo area, formerly a part of Finland, has been fully described in several papers2/ and will

5/ Freeman, T.W. and Macdonald, Mary, "The Arctic Corridor of Finland," Scottish Geographical Magazine, Vol. 54, 1938, pp. 219-230.

Kuenhelt-Leddihn, Erik R., "The Petsamo Region," Geographical Review, Vol. XXXIV, No. 3, July 1944, pp. 405-417.

Tanner, V., "L'utilisation Économique du Territoire de Petsamo," Fennia, Vol. 49, No. 3, 1929, pp. 115-122. (abstract)

not be elaborated on here. Less has been published about the Pasvik valley6/ which is essentially a broad and shallow depression

6/ Some information is available in:

Lerberg, Arne, "Sammenstilling av geografiske fakta vedrørende Kirkenes med Sør-Varanger" (Compilation of geographical data about Kirkenes and Sør-Varanger). Thesis. Geography Department, University of Oslo, Oslo, 1948. Microfilm at Dartmouth College Library.

within an upland surface which ranges from about 200-400 metres above sea level on either side. The Pasvik River where it first enters Norway from the U.S.S.R. at Grensefoss is about 100 metres

above sea level. From there, northward, it forms a string of long, comparatively narrow lakes linked by short rapids and with occasional stretches of calm water. The flood plain on either side of the stream is broad in places, and there is much swamp. Within the main water course there are numerous low islands. The character of the stream has caused some difficulties during delimitation of the international boundary. The Jakobselv (Vuoremajoki), which forms the easternmost part of the boundary, includes few lakes and rapids and its lower course meanders considerably. Changes in the stream course due to erosion have presented boundary problems.^{7/}

^{7/}

Plans were drawn up by the Norwegian government in 1953 to erect retaining walls 7 km. long to prevent the Jakobselv from shifting its course. The report states that Norway is to undertake the work as part of its agreement with the U.S.S.R. See: Sør Varanger Avis, No. 12, Feb. 14, 1953, p. 2.

Much of the upland (vidda) is a gneiss-granitic complex^{8/} and

^{8/}

The south side of Varanger Fjord is a part of the Fenno-Scandinavian Shield. The north side is mainly eroded Palaeozoic sandstone.

includes peneplane surfaces at different levels. The main valleys are filled with morainic drift and various types of fluvio-glacial outwash. Small and larger lakes are widespread both on the uplands and within the valleys. The area as a whole has undergone post-glacial uplift ranging from 75 to 100 metres.

Natural vegetation cover of the surrounding country includes isolated patches of tundra which include stunted willow, especially on the uplands east of the Pasvik valley and near the seacoast; considerable areas of birch-covered uplands to about 300 metres above sea level and especially to the south and within the Pasvik valley true forest,^{9/} with coniferous trees of merchantable dimensions.

^{9/}

The name "Petsamo" is derived from the Skolt Lapp word Peatt-sám meaning "country of pinewoods." Lingeman, Eric R., Report on Economic and Commercial Conditions in Finland, London, 1938. At one time the forest extended nearer to the coast than it does now.

This is the northeasterly limit of the coniferous forest that covers much of Finland and northern Sweden. Farther south at the Arctic Circle, the predominant trees are usually Norway Spruce (Picea abies) and Scots Pine (Pinus silvestris), but in the Pasvik valley they have been largely replaced by Lapland Pine (Pinus lapponica). Just south of Kirkenes is the westernmost limit in these latitudes of the Siberian Larch (Larix sibirica). Drier terrain has a more

or less thick carpet of "reindeer moss" (Cladonia rangiferina), and this is especially widespread on the dwarfbirch uplands.^{10/}

^{10/}

A map of the northern limit of some trees and bushes accompanies Chapter 14 "Vegetation" by Viljo Kujala in Suomi: A General Handbook of the Geography of Finland, Helsinki, 1952.

Tanner,^{11/} in a discussion of the resources of the formerly

^{11/}

Tanner, V., op.cit., Vol. 49, No. 3, p. 117.

Finnish (eastern) side of the valley estimated in 1929 that there were about 108,300 hectares of timbered country, offering at best 35 cubic metres of wood per hectare. The trees were slow-growing, taking from 20 to 100 years to reproduce themselves. Some trees were 250 years old.

On the Norwegian side, commercial production of lumber has been carried on for many years under supervision of government foresters. There are important forest districts in the boundary area: - 1. Pasvik valley and Langfjord, 2. Jakobselv valley, 3. Jarfjord, 4. Bøkfjord, 5. Neiden-Munkefjord, 6. Bugøyfjord. However, the Pasvik valley is the only one now being lumbered systematically since it alone has coniferous forest. For many years the Pasvik River was used to float lumber both from Norwegian and Finnish territory down to the large sawmills at Jakobsnes near Kirkenes. During the Second World War the Nazi occupation authorities cut timber heavily and it has been estimated that about 30,000 cubic metres more was used than could be replaced in that period.^{12/}

^{12/}

Grøvlén, Kaare (Skogforvalter) "Skogenes utpost mot nord," (The forest's northern outpost), Sør-Varanger Avis, April 9, 1952, pp. 28-29. About 15,000 cu. m. of timber was cut from the Pasvik valley in 1950-51. Some logs were 2 cu. m. in size and 250 years old. The mean of all logs cut was 0.27 cu. m.

Visitors to the Pasvik valley from the Norwegian outer coast are at once struck by the richness of the vegetation in comparison with that of the shore of Varanger Fjord, and of northern Finnmark as a whole. As one traveller described it about fifty years ago:

"Twelve miles from the sea were slender birches, open meadows, buttercups, pansies, forget-me-nots, dandelions, pink campions and cranberries. We might have been walking in the Tyrol."^{13/}

^{13/}

Hyne, Cutcliffe, Through Arctic Lapland, London, 1898, p. 30.

Climatically the border region is of course exceptionally mild for its latitude, in common with the rest of northern Norway, but the moderating influence of the sea fades rapidly inland. The 10°C. isotherm runs (summer) is near the coast, as is the annual 0°C. isotherm. The July 12°C. isotherm runs east-west through Boris Gleb with still higher temperature inland to the south. In February this locale is occupied by the -9°C. isotherm. Winters are of course colder still farther south, away from the mild influence of the open sea. At the southern end of the Pasvik valley the mean temperature of the coldest month is of the order of -13°C., while it is 4° or 5° warmer at the coast.^{14/} The ground is covered by snow for about

^{14/}

The lowest temperature recorded at Kirkenes during February, 1953 was -29.4°C. On the same day -42.2°C. was recorded at Vaggetem in the southern part of the Pasvik valley. The hottest day in the following June was 34°C.--recorded still farther south in the valley.

7 months from October to April, with annual precipitation somewhat less than 400 mm. The Pasvik River drains an area of about 468,000 sq.km., and has a normal run-off of about 180 cubic m. per sec. The river is usually free from ice in late May.

The length of daylight in the area is an important factor not only in the growth of vegetation and the daily lives of residents, but also in policing the international boundary.^{15/} At Jakobsnes,

^{15/}

For example, fishing on the Pasvik River is forbidden during darkness.

near Kirkenes in Lat. 69°45'N., daylight lasts from May 18th to July 27th, and the sun does not rise from November 28th to January 17th.

Population.

Nothing official is known about the population distribution on the Soviet side of the international boundary. In 1938, when it was a part of Finland, the Petsamo region averaged about 1 person to every 3 sq.km. and the total population was about 4,300.^{16/} The

^{16/}

Annuaire Statistique de Finlande 1939, Helsinki. The population in 1926 is given by Tanner, op. cit., p. 121 as 2,019.

total was increasing rapidly because of improvement in the seaport of Liinahamari near Petsamo and developments at the Salmijärvi nickel mines. The distribution by national origins at that time gives some clue to the complex political history of the region.

There were:

Karelians	400
Russians	200
Skolt Lapps (Greek Catholics)	400
Lutheran Lapps	60
Finns--the remainder	

plus temporary workers connected with the nickel mines and associated power projects.

Since these data were collected the Skolt Lapps have been evacuated, mainly to the Inari region of Finland. Many Finns, possibly 1,600, escaped into nearby Norway during the 1939-40 winter military campaign. Since 1944, it is believed the Soviet authorities have cleared the border area of all civilians apart from the mining settlements at Salmijärvi and Nikkeli, and the seaport area near Petsamo.^{17/} There are believed to be labour camps with-

^{17/}

That there is considerable activity in the area is known from the movement of vehicles along roads near the border. Some estimates place the population at the Nickel Mining settlement as high as 10,000.

in this frontier zone.^{18/}

^{18/}

A young man who escaped into Norway near Grensefoss is believed to have been in such a camp. See Sør-Varanger Avis, No. 46, June 17, 1953, p. 2.

Accurate population data are available from the Norwegian side. The wartime bombing at Kirkenes, which was second only to Malta in its concentrated severity, and the Nazi policy of enforced evacuation late in 1944, completely disrupted the prewar population distribution. By the end of 1950, the Sør-Varanger parish which includes the Pasvik valley, contained 8,379 people of which 2,604 were in Kirkenes itself.^{19/} At that time the iron ore mine

^{19/}

St. meld. nr.85, 1951, Oslo, p. 38.

at Bjørnevatn and the concentrator at Kirkenes were not yet working. The total has since increased considerably, but distribution in rural areas, especially near to the border has probably changed little if at all.^{20/}

^{20/}

See population map (Fig. 2) for detailed distribution of pop-

ulation in December, 1950.

Significance of Mining.

Looking south from the Norwegian iron mines at Bjørnevatn 9 km. from Kirkenes one can see, 30 km. away, the 165 metre-high chimney of the Soviet-owned nickel smelter at Salmijärvi, adjacent to the Pasvik River. During the long Arctic night the lights of the two industrial areas twinkle at one another across the international border. This nickel occurrence was first discovered in 1921 while looking for an extension of the Norwegian Bjørnevatn iron ore into Finnish territory. It consists of pentlandite and chalcopyrite containing copper, and pyrrhotite containing nickel. The ore is believed to contain about 1.6% Ni. and 1.3% Cu. The mine is on the upland east of the lake Kuotsjärvi near a village, Kolosjoki. It is approached by a road about 30 km. long, ^{21/} branching from the formerly Finnish Arctic Highway, Route No. 4, ^{21/} south of Salmijärvi. The

21/

This good gravel highway running for 531 km. from Rovaniemi to the Arctic Sea at Petsamo was opened in 1929.

refinery itself is near the main highway at Salmijärvi and readily visible from the Norwegian side of the lake of that name. On Soviet maps the mining village is designated Nikkeli.

A description of the area dating from 1939, ^{22/} when the mine

22/

Strode, Hudson, Finland Forever, New York, 1941, p. 112.

was owned by the Petsamo Nickel Company, refers to the village of Salmijärvi as "open to wind and sky" by the lakeside. It included a new school, restaurant, post office, a movie theatre, gymnasium, and many houses. Cars were numerous and a landing field was under construction. At that time the area was developing rapidly both as a tourist centre and as a construction camp. The ferry at Salmijärvi carried heavy tourist traffic during summer from Finnish Route No. 4 destined for Norwegian Highway No. 50 at Kirkenes. The area attracted many southerners on holiday especially in summer, for temperatures there reach 35°C. in August, although winter minima may be as low as -47°C. ^{23/}

23/

Lapland, Short Guide for Tourists, Helsinki, 1938. Gives a good description of the area.

Associated with the nickel occurrence there were in 1939 two other modern developments. Fifty km. to the northeast at Liinahamari, there was a new seaport on Petsamo inlet. All equipment for

the new mine and for the associated power plant was imported through it, and carried in long convoys of trucks via route No. 4. It was intended that nickel should be exported the same way. The other interesting local development was an electrical power plant to serve the mine and refinery and light the settlements. While there are useful waterfalls nearby in the Pasvik River, the Finnish authorities apparently preferred to avoid the complications involved in using international waters, by building the hydro-electric plant at Jäniskoski, wholly within Finnish territory, about 80 km. south-west of the nickel mines on the Pasvik River. In 1939 about 2,000 workmen were engaged in the project and in construction of a control dam at Niskakoski near the outlet from Lake Inari to regulate its level.

When Russian invasion threatened late in 1939, the power plant, nickel refinery, port works and the housing and other facilities were partially destroyed by the retreating Finnish army. However, when Nazi armies entered the area shortly afterward, strenuous efforts were made to operate the hydro-electric plant and the nickel mine. Nickel matte was exported by way of Kirkenes and a beginning was made in construction of a telfer line from the Kolosjoki mine to Petsamo Fjord.^{24/}

24/

A surprisingly complete account of German military activities in this area is given in: Radulic, Lothar, Gekämpft, Gesiegt, Geschlagen, Heidelberg, 1952, including a photograph of the Jäniskoski power plant, p. 305.

The retreating Nazi armies destroyed as much as possible of the nickel refinery and the power plants when they retreated in September, 1944. In April, 1951 I was able to see something of the nickel refinery and the surrounding settlement from Svanvik in Norway. Nothing reliable is known about activity there except that the plant appears to be operating continuously. The Lake Inari control dam and the Jäniskoski power plant have also been rebuilt, and began operation early in 1951. A second power plant was stated to be under construction on the Pasvik River immediately south of the Norwegian border, in 1952.

Norwegian mining activity in the boundary area has a longer history. Iron ore was first discovered at Bjørnevatn in the 1860's but the first permit to mine was not secured until 1902. The A/S Sydvaranger Company was founded in 1906, largely with Swedish capital.^{25/} Construction was started the following year, and the first

25/

For a more complete study of the company see: Lloyd, Trevor, "Iron Ore Production at Kirkenes, Norway."

ore was exported in 1910. The ore--which is magnetite-taconite containing about 33% iron--was transferred by electric railway to the seacoast at Kirkenes, a distance of about 9 kms., where it was ground and separated and prepared for export as powder or briquettes.

During the war of 1940-45, Kirkenes was fortified heavily by

the occupying Nazi army, and became a regular target for allied air attacks. There were more than a thousand air raid alarms and 328 actual bombings before the occupying forces destroyed what remained and retreated westward late in 1944.^{26/} Norwegian officials

26/

See: Finnmark i Flammer, Kragerø, 1950, pp. 30-58, also Borgen, Axel, "Sør-Varanger og A/S Sydvaranger," Sør-Varanger Avis, April 9, 1952, pp. 17,18,23,24, and 25.

accompanied the Soviet army and took over civil administration. After a short period of occupation the Soviet forces withdrew and the Norwegian government began reconstruction of the town in 1945. Rebuilding of the iron ore plant cost about kr. 176,000,000 (\$25,000,000), of which about half was contributed by the Norwegian state. Export of iron ore in powder form was resumed in April, 1952,^{27/} by which time the town was well on the way to being rebuilt.

27/

From April, 1952 to June, 1953 the mine produced about 740,000 tons of concentrates, the export value of which was estimated at 55-60 million kroner (about \$8,000,000). The mine ended the 1952 financial year with a kr. 1,300,000 surplus. About 830,000 tons of concentrates were exported in 1953.

Historical Evolution of the Norwegian-U.S.S.R. Boundary.

The Pasvik valley and the nearby Norwegian and Soviet coastlines are of obvious strategic interest that need not be stressed here. The area has been significant for many centuries despite its apparent remoteness, relative to more southerly regions. The advent of long-range aircraft, convoy routes and strategic minerals, has only served to re-emphasize its long-established importance. The following outline of the evolution of the international boundary describes only the main incidents in the changing title to the boundary area, but it serves to explain how several nations have been concerned with its history.^{28/} During the tenth century, Olav

28/

For a popularly written and dependable history of the area, see: Stagg, Frank Noel, North Norway. A History, London, 1952, especially pp. 59-63, 81-96 and 106-114. Historical geography of the area is covered briefly in: Mead, W.R., Finnmark, an Historico-geographical study, Can. Geog. Jour., Vol. 24, May, 1942, pp. 204-247, maps. A fuller account written with the assistance of the Norwegian External Affairs Department is: Johnsen, Oscar Albert, Finnmarkens Politiske Historie, Kristiania, 1922.

II, King of Norway and his relative by marriage, Yaroslav, Grand

Duke of Novgorod are said to have made an agreement placing their common boundary at Lyngen Fjord,^{29/} (now in Troms Fylke, Norway),

^{29/}

Engelhardt, Alexander P., A Russian Province of the North, Philadelphia, 1899, p. 107. The author, at that time Governor of Archangel Province, gives as his authority "the works of Eric Berner published at Stockholm in 1740." No confirmation of the statement has been found.

but the agreement apparently had no long-term significance. There could of course at that time be no sovereignty in the modern sense in such a remote and sparsely-peopled region. The lack of any precise boundary there is well illustrated by the old Russian name for the northern shore of the Kola Peninsula, long referred to as "Murmanskoe Zemlya" (Land of the Norsemen). The modern name Murmansk reminds us of the Norwegian traders and hunters who settled in the area long-ago. The first important recognition of an international boundary in the area was the Treaty of Oriskany in 1323,^{30/} when the Novgorod Russians and Sweden accepted Var-

^{30/}

Ibid. p. 108. The crowns of Norway and Sweden were united in 1319.

anger Fjord as the eastern limit of Swedish-Norwegian influence in Finnmark. Three years later a treaty signed at Novgorod recognized Finnmark as Norwegian, but failed to mention a precise boundary. In 1595 following a further long period of military conflict with Russia concerning Finnish and Karelian areas, Sweden succeeded in re-establishing Varanger Fjord as the westernmost extension of Russia. In effect the boundary line at that time ran from Neiden to Lake Inari.^{31/} In spite of the charac-

^{31/}

"Sverige och Ryssland (1595-1611)" in Akademisk Afhandling af Helge Almquist, Uppsala, 1905. The precise delimitation was "Gränsen drags öfver Sarvitaipal, Ijovaara och Enare träsk och slutade vid ishafvet, 3 mil. öster om Varanger; de tre lappbyarna Mannselkä, Kitkajärvi och Kuolajärvi, som forut skattat både till Ryssland och Sverige, kommo nu helt under Sveriges krona, men deras befolkning utvandrade öfver Gränsen." This is an early statement of the right of the local Lapps to cross the border at will. See also Fig. 5 in W.R. Mead, "Finland in the 16th Century," Geographical Review, Vol. 30, 1940, pp. 400-411.

teristic precision of this delimitation in the treaty, there was on the ground really a frontier zone where sovereignty was very nominal. Tax-gathering was the main interest of both Sweden and

Russia in the area, and it was no doubt to avoid quarrels over double-taxation of the migratory Lapps, that the two countries agreed on Varanger as a dividing line.

Despite the remoteness of Finnmark when viewed from Baltic Lands, the area was of course readily accessible from the open sea, and it was from this direction that new influences arrived following the discovery of Spitsbergen in 1596. Dutch, German, English and other whalers and sealers entered the area and active trade was carried on with the Murman coast and with the interior of Russia by way of the Norwegian coast.^{32/} Kristian IV, King of Denmark and Norway

^{32/}

Larsen, Karen, History of Norway, New York, 1946, pp. 281-2.

(the crowns were joined in 1387), made a noteworthy journey by sea along the coast of Norway in 1599. He believed that Russian policies were expansionist, so he "showed the flag" off Finnmark and built the famous fortress at Vardøhus, (where a Norwegian fort of sorts had existed since 1307). Throughout his reign he considered Norwegian sovereignty as extending eastward to the White Sea.^{33/}

^{33/}

Magnus, A., "Grenseland," Sør-Varanger Avis, April 9, 1952, p. 31.

Another new factor in the situation had been the founding of a monastery near the present site of Petchenga (Petsamo) by St. Trifon in 1524.^{34/} Although it was sacked by the Swedes in 1590, the

^{34/}

Engelhardt, op. cit. p. 113. See also "Petchengaklosteret, verdens nordligste--som ble grunnlagt av røverhøvdingen Trifon." (Petchenga monastery, world's northernmost, which was founded by the rover-chieftain Trifon.) Norsk Polar-Tidende, November 1951, pp. 45-48.

site remained a centre of Russian missionary work and consequently of trading. It is to the work of Trifon that the present Boris Gleb territorial anomaly described later, is due. Norwegian influence in the area was comparatively slight because of the small Norwegian population and its remoteness from centres of administrative power.

The frontier region remained without more precise delimitation until 1751 when the Boundary Treaty of Strömstad established the Swedish and Norwegian border as a line running from Koltijärvi (Hisgen) to Kolmisoaive (Golmisoaive) 20 km. southeast of Polmak

on the Tana River in Finnmark. This boundary was not demarcated farther east, where there were Lapp "fællesdistrikter" (areas held jointly) under both Norway and Russia. ^{22/} At this time Fin-

35/

Geographic Society of Finland, Atlas of Finland, text, Helsinki, 1929, p. 264.

land was not considered as having any claim to Lapland. ^{36/}

36/

"Sør-Varanger tilhørte før 1826 det store fellesområde, hvor nordmenn, svensker, samer og russere har ferdedes fritt helt til grensetraktene av 1751 og 1826." (Sør-Varanger before 1826 was a part of the great, jointly held area where Norwegians, Swedes, Lapps and Russians had journeyed about freely up until the border agreements were established in 1751 and 1826.) Gunnari, Oscar, "Grense handelen i gammel og ny tid." Sør-Varanger Avis, April 9, 1952, p. 37.

The boundary agreement of greatest contemporary significance came 77 years later with the Treaty of St. Petersburg in 1826. ^{37/}

37/

The original treaty documents which had been in Swedish government archives since 1826 were transferred to Oslo, Norway in 1952.

between Russia and Norway. The present boundary is derived from it, including the unusual character of the Boris Gleb area. By it, it was agreed that the Lapp nomadic areas (fællesdistrikter) which included the regions tributary to the villages of Neiden, Paatsjoki and Petchenga, should be divided up by a line running from Gelsomio along the Pasvik River and the lakes forming part of it as far as the church of Boris Gleb ^{38/} on its left bank. The line

38/

Founded in XVI Century by St. Trifon. For a photograph of the church and its surroundings in 1928 see: Tanner, op. cit., 1929, No. 3, p. 2.

was then to turn westward circling the church at a distance of one verst (one English mile) until it again reached the river. There it was to cross the Pasvik River and run southeastward to a specified small lake and so on to the point where the Jakobselv (Vuoremajoki) is formed by the confluence of three small streams. It was

then to follow the Jakobselv to its mouth in the "frozen sea near Jakobs Wig."^{39/} There is evidence^{40/} that Norway was disappointed

^{39/}

The text is reprinted in French and Norwegian in Nor. St. Prp., Nr. 119 (1948), Bilag 2, pp. 39-44.

^{40/}

Borgen, op.cit., p. 17.

in the decision to include Boris Gleb within Russian territory. It had been hoped that the line would run from Svanvannet (part of the Pasvik River in Lat. 69°30'N.) directly eastward to Jakobselv, but Russian pressure secured the 3.6 sq. km. area around the church of Boris Gleb, and incidentally, with it control of both banks of the stream for about two versts below the falls at Skoltefoss.

The convention of 1826 laid down administrative procedures concerning the boundary, such as the appointment of commissioners, and freedom of navigation, floating of timber, and fishing in the two international rivers. The boundary itself was to follow the deepest channel of the rivers and to run through the middle of any lakes within the water course. The boundary was delimited the following year.

Despite Russian sovereignty over both sides of the river in the Boris Gleb area there is no evidence^{41/} that this control was used to impede Norwegian use of the waters.^{41/} At this time population

^{41/}

The following reference to conditions in the boundary area before the 1914-18 war is typical: "Mange vil med savn minnes de gode gamle tider da en fritt kunne reise over grensen til Russland;... laksefisket i Pasvikelva var helt fritt, og ferdselen langs elva gikk helt uhindret på begge sider." (Many long for the good old days when one was free to cross the border to Russia;... salmon fishing in the Pasvik River was carried on freely, and traffic along both sides of the river was unimpeded.) Gunnari, op.cit., p. 37. Conditions nowadays along the Tana River, which flows between Norway and Finland, are a good example of such neighbourliness. During the 1951 winter a Norwegian acquaintance of the writer damaged an automobile tire when driving on the river ice. He bought a new one at the nearest garage (in Finland) and drove on.

of the Norwegian part of the Pasvik valley totalled 390, most of whom were Lapps, and residents on the Russian side were probably just as few.

Remote though it was the boundary attracted international attention as a side issue in events leading up to the Crimean War

(1853-56). In 1851 the Czar of Russia had demanded that Russian Lapps living near the Norwegian boundary should be permitted to fish in territorial waters to the west, on the southern shore of Varanger Fjord, and that they should also be allowed to live in the area in winter. Fearing that the Russian proposal might lead to broader claims and possible military use of the area, permission was refused⁴² and as a reprisal Russia closed the border with Nor-

⁴²/

Larsen, op. cit., p. 425. See Stagg, op. cit., p. 188 for details of the British attitude to possible Russian encroachment.

way in 1852, so preventing Norwegian Lapps from moving into Finland (Russian territory) as had formerly been done.⁴³ This, inci-

⁴³/

Gollinder, Bjørn, The Lapps, New York, 1949, pp. 29-30. See also Vorren, op. cit., p. 142.

dently, caused many of them, thus deprived of adequate grazing, to move southward to Karesuando in Swedish Lapland.⁴⁴

⁴⁴/

Wiklund, K.B., "The Lapps in Sweden", Geographical Review, Vol. 13, 1923, p. 229-230.

Great Britain encouraged Norway in its resistance to Russian pressure, and in the "November Treaty" of 1855 guaranteed military assistance to protect Finnmark against Russian aggression.⁴⁵ Fin-

⁴⁵/

Larsen, op.cit., p. 425. See also Stagg, op.cit., pp. 188-189.

nish political influence in the area dates initially from 1864 when a decree of the Czar of Russia placed Finnish Lapland under Finnish control. The Petchenga (Petsamo) District was included in the decree in return for "The Siesttarjok rifle factory area on the Karelian Isthmus." This Petsamo portion of the agreement was, however, never carried into effect.⁴⁶ Detailed demarcation of the Russian-Norwegian border was more or less completed by 1848,⁴⁷ but was reviewed in 1871 and 1896-7.⁴⁸ The main duties of the Commissioners

46/

Sutherland, Halliday, Lapland Journey, New York, 1938, p. 184.

47/

Klingenberg, K.S., "Praktiske og Juridiske Spørgsmål opstått under Grenseopgangen mellem Norge og Finland 1925." Norsk Geog. Tids., Vol. 3, hefte 4, 1930, pp. 195-240.

48/

Haataja, Kyösti, "Questions Juridiques Surgies Lors de la Révision de Frontière Finlandaise Entre Le Golfe de Bothnie et L'Océan Glacial." Fennia, Vol. 49, No. 1, 1927, pp. 1-46. For additional topographic details about adjustments of the boundary markers in 1896, see St. prp. Nr. 119, pp. 12-13.

on the later occasion, were to take into account changes in river courses since the previous demarcation, and to erect more permanent stone beacons at strategic points.^{49/}

49/

Hynes, Cutcliffe, Through Arctic Lapland, London, 1898, p. 42.

Finland-Norway Boundary.

It was this line as marked in 1896-7 that became the Finnish-Norwegian boundary in the Pasvik valley and Jacobselv valley following the cession of the Petsamo area to Finland by the Treaty of Tartu (Dorpat) signed between Russia and Finland in October, 1920. The cession of the 10,470 sq.km. (4,050 sq.m.) of land by Russia was interpreted by Finland as a much delayed carrying out of the agreement of 1864 already mentioned. The U.S.S.R., it now appears, thought of it otherwise and Molotov wrote in 1940, "The USSR made the greatest concession by giving Petsamo to Finland, for which there was no compelling reason when peace was made in 1920."^{50/}

50/

Official Blue-White Book of Finland, New York, 1941, p. 95.

Despite the withdrawal of Russia from the Pasvik valley for the first time in 1920, she retained specific rights in the ceded area, including customs-free transit of goods, passage for her citizens, and a ban on the use along the coast by Finland of certain types of armed vessels.

Settlement of the details of the Norwegian-Finnish boundary based on the Treaty of April 28, 1924^{21/} between the two countries was not without its difficulties. As they have been discussed at great length elsewhere,^{22/} nothing is to be gained by repeating all

51/

Klingenberg, op.cit., Haataja, op.cit., Gleditsch, Kristian, "Rivers as International Boundaries," Nord. Tids. Internat. Ret., Vol. 22, 1952, Fasc. 1, pp. 15-32, Fig. 3.

52/ League of Nations, Treaty Series, 30-31, 1924-25, Nos. 757 and 758, pp. 35-62, and Nor. St. prp. nr. 65, 1924. See also Nor. St. prp. nr. 119, 1948, pp. 13-16, for a brief summary.

the disagreements here. They centered largely on details of the boundary with regard to islands in the river courses, changes in these courses, and the precise location of the boundary in the estuary of the Jakobselv (Vuoremajoki). The main points of controversy in the latter locality are of some contemporary significance since not only is it now the line of contact between the Soviet Union and Norway, but the precise location of the line has an important bearing on international fishing rights in the area. Briefly stated, the essential problem was as follows: At the mouth of the Jakobselv, there is an area^{53/} about 1.5 km. long by 0.5 km.

53/ See Haataja, op.cit., plate 8, and Tanner, op. cit., p. 123.

wide which at high water forms an inlet of the sea connected to the ocean by a narrow watercourse 150 metres long and 60 metres wide. (See Fig. 5) At low tide this area consists of sandbanks crossed by the river through several channels, many of which are shallow enough to be forded. The location of these water courses and sandbanks changes from time to time. About two hundred metres out into the open sea is a rock which barely appears above water at low tide. Norway had placed a navigational beacon on the rock in 1912, and a second beacon was placed on another rock 1,250 metres to the northwest, which also barely appears at low tide.

Under the Russian-Norwegian boundary demarcation of 1896, the boundary in the Jakobselv had followed the deepest part of the channel at ebb tide, and then ran out to sea somewhat west of the first beacon rock. Beyond there it was generally assumed that the boundary ran directly to Kibergnes on the far side of Varanger Fjord. Consideration of this latter line is somewhat outside the present discussion. It dates from a Norwegian Royal Decree of 1881 (renewed in 1896), intended to govern the pursuit of whales. ^{54/}

54/ "In regards to the Varangerfjord the limit of the forbidden zone shall be a line drawn from Kibergnes to Graendse-Jakobselv." Haataja, op. cit., p. 26, quoting a Norwegian decree of 5.I. 1881 and 17.XII. 1896.

This line was recognized by the Russians as in effect with the Norwegian Territorial boundary. The validity of the line was affirmed in the Finnish-Norwegian agreement of 1924.

The essential disagreement between Norway and Finland in the area concerned the demarcation of the boundary in the mouth of the Jakobselv itself--whether it should be drawn at low tide or at some

other state of the tide, which here has a considerable range.^{55/}

^{55/} "Fiskere søker undertiden med sine skøiter på høivann inn i elvebassenget hvor de ved lavvann blir liggende tørr." (Fishermen sometimes bring their vessels into the estuary at high tide and become grounded at low tide.) Den Norske Los, Oslo, 1926, p. 138. The problem arose again in Norwegian-Soviet discussions in 1947. The Norwegian delegation feared that Norwegian boats might be excluded from the Jakobselv at low tide if the new boundary placed the stream-mouth wholly in the U.S.S.R.

A second controversy concerned ownership of the two "rocks" carrying beacons--since they were outside the Jakobselv-Kibergnes line, but occupied by Norway. In view of the later decision of the Hague Court^{26/} concerning the waters near Norway forbidden to travellers,

^{56/} "Haag-dommen gikk helt i Norges favør." (The Hague Court rendered judgement wholly in Norway's favour.) Tromsø, Dec. 19, 1951.

the ownership of these rocks ultimately became a matter of some significance. In fact the one nearest the land was the "anchor point" of the whole Norwegian-British dispute since it is marked "No. 1" on the Norwegian chart carrying the famous "blue line."^{57/}

^{57/} Chart 325 of 1951 bearing the notation against the number "betyr Grunnlinjepunkt for Fiskerigrense fastsatt ved Kgl. Resolusjon av 12. juli 1935." (Means base point for fishing boundary established by Royal Decree of July 12, 1935.)

An agreeable solution of these difficulties was reached by Norway and Finland in 1931, but delays in demarcation meant that not until 1939 were the 11 fixed points actually located. The subsequent war meant that the boundary was never utilized.^{58/}

^{58/} St. prp. nr. 119, 1948, bilag 1, p. 15. Gleditsch. op. cit., p. 21.

Apart from such relatively minor difficulties, the boundary between Finland and Norway was a friendly one. Finland did much to advance development of the Petsamo area and to bring it nearer the standard already reached by Sør-Varanger in Norway.^{29/} The absence

^{59/} See for example, "Petsamo-Kola, the Northern Finno-Russian Frontier Region." Geographical Review, Vol. 30, 1940, pp. 149-152 and Kuenhelt-Leddihn, op.cit., 1944.

of any excise duties in Finnish Lapland is said to have encouraged

smuggling by local residents, but for the most part the boundary was trouble-free.^{60/}

60/

Agreements between Norway and Finland concerning boundary regulations are listed in ref. No. 58, St. prp. nr. 119, pp. 15-16.

Following the Winter War of 1939-40, the Petsamo area which had been occupied by Soviet forces was returned to Finland, with no direct effect on the Norwegian boundary. There was one territorial change in the northeastern part of the Finnish Petsamo area--the transfer of the whole of Rybachi Peninsula and part of the mainland itself to the U.S.S.R.^{61/} Soviet troops by prior agreement

61/

Shown clearly on Deutsche Heereskarte, 1:300,000, Ausgabe Nr. 2, 1944, Nordeuropa, V70-W68, Kirkenes-Kowdor.

evacuated from the Petsamo area by April 10, 1940 (one day after the Nazi invasion of Scandinavia). The U.S.S.R.-Finland Treaty of March 12, 1940, did little more than reimpose the restrictions on Finland laid down in the original Treaty of 1920.^{62/} About 1,500

62/

Articles 5, 6 and Protocol §. 5 of Peace Treaty between U.S. S.R. and Finland, March 12, 1940, Appendix II, Finland Yearbook, 1947. See also Official Blue-White Book, pp. 35-39.

Finnish residents who had escaped across the boundary into Norway during the Winter War were admitted freely.

The 1940 settlement between Finland and the Soviet Union became somewhat academic almost at once when the Nazis invaded northern Norway, and Finland collaborated. Finland and U.S.S.R. again went to war on June 27, 1941. Norwegian Finnmark was occupied by very large German forces. Airfields were constructed there as bases from which to bomb convoys on the way to Murmansk, and Petsamo Fjord and Kirkenes became centres of German naval activity. Movement to and fro across the international boundary in the Pasvik valley was facilitated by road and bridge construction.^{63/}

63/

See also "Grenseforholdet under krigen 1939-45" in Nor. St. prp. nr. 119, 1948, p. 16.

Russia Returns to the Pasvik Valley.

The international boundary next became significant on September 19, 1944, when Finland concluded a separate Armistice with the U.S.S.R. and Great Britain, on behalf of other allied powers. This, among other things, ceded the Petsamo district to the U.S.S.R.,

and Finland was once more without an Arctic Sea coast. Russia and Norway were again in contact along the old frontier and a quarter century interlude ended. The provisions of this armistice agreement were incorporated in the Peace Treaty of 1947 signed at Paris. 54/

64/

Finland Yearbook 1947, Helsinki, Appendix III.

As a consequence, Norway initiated discussion with the U.S.S.R. to make arrangements for administering their mutual boundary. The two countries were represented at meetings with Finland in August, 1945 and September, 1947, concerning a single point on the border--at Krokfjellet where the three countries meet. 65/ Discussions between

65/

Relevant Norwegian documents are:-Overenskomster med Fremmede Stater, No. 1, Jan. 9, 1946 (signed Oct. 26, 1945); No. 3, Dec. 28, 1948 (signed Dec. 3, 1947); Protokoll to the above signed Feb. 7, 1953.

Norway and the U.S.S.R. alone went on in Moscow and Oslo at intervals from August, 1946 to December, 1949. Delegation members, as well as survey parties visited the border during the 1947 summer. The outcome of the discussion was two agreements, the first appearing in 1947 concerned the location of the boundary itself. It was based on the joint boundary surveying and demarcation commission which worked in the field during the 1947 summer. 66/ The second

66/

The agreement was signed at Moscow on Dec. 18, 1947, and is published in Nor. St. prp., nr. 119, 1948.

agreement signed in 1949 dealt with administration of the border. 67/

67/

This agreement was signed at Oslo, Dec., 1949 and has been published in the form in which it was ratified at Oslo Palace, June 30, 1950 and signed by Haakon R. Its full title reads: "OVERENSKOMST-mellom den Kongelige Norske Regjeringen og Samveldet av Sovjetiske Sosialistiske Republikker om forskjellige forhold ved den norsk-sovjetiske grense og om fremgangsmåten ved ordningen av konflikter og hendinger på grensen."

The line agreed upon in 1947 was essentially that of the period 1826-1920. The only alterations in it were those made necessary by inaccuracies in earlier surveys, obliteration of landmarks, or minor changes in the courses of streams and the location of islands.

Where the boundary is formed by waterways, the principle

accepted was to make the line follow the deepest channel (usually referred to as the "thalweg" or in Norwegian "djupål"). In practice as Gleditsch points out^{68/} the thalweg needs to be defined as

^{68/}

Gleditsch, *op.cit.*, provides a brief but admirable discussion of the use of the thalweg as a boundary and the best means for locating it exactly.

a line and not a channel, and its precise definition is extremely important. There were apparently no serious points of disagreement, and the demarcation went ahead smoothly. Long discussions were needed to reach agreement on the precise location of the line in the estuary of the Jakobselv. The original Soviet suggestion based on the 1896 maps would have excluded Norwegian boats from the river at low tide.

The Soviet Delegation suggested a minor rectification of the boundary at the southern edge of the Boris Gleb area. As the map (fig. 4) shows, Norway controls a short stretch of road (near boundary post No. 196) along the west bank of the Pasvik, south of the Soviet "enclave." This effectively blocks Soviet access to the territory from the south along the river's west bank. The change suggested would have given the U.S.S.R. an additional strip of land about 250 metres wide, at the southern edge of Boris Gleb in exchange for a corresponding strip along its northern edge. Norway did not favour the change since it would have transferred to the U.S.S.R. control over both banks of the Pasvik River at the waterfall, Skoltefossen (Koltaköngäs), thus providing a site for hydro-electric development by the U.S.S.R. alone. The boundary, as it has existed since 1826 crosses the "lip" of the waterfall giving the U.S.S.R. control of the actual fall.^{69/}

^{69/}

In 1945, the U.S.S.R. Commissariat for Foreign Affairs informed the Norwegian government, that it wished to build a hydro-electric station at Skoltefossen to supply the Petchenga Nickel Plant. It suggested that the matter be settled by an exchange of notes. Norway stressed its own interest in development of Pasvik hydro resources as a whole and suggested discussions of a joint development, but nothing came of the suggestion.

The 1947 international boundary is shown on a newly surveyed set of 18 topographical sheets on a scale of 1:25,000. The maps include only a strip of land 1 km. broad on either side of the agreed line. Reduced copies of a few typical sheets are attached to the printed boundary Agreement of 1947. A second appendix provides details of the geodetic basis for key points in the line. There are also diagrams of the types of boundary markers used in each section.^{70/}

^{70/}

Published in Norwegian and Russian as an Appendix to the December, 1949 Agreement. Only a few photographic copies of the complete series appear to have appeared. The original Atlas accom-

panying the 1947 Agreement apparently incorporates a separate map and detailed description for every one of the 415 boundary markers.

The boundary is a combination of surveyed straight lines on land and of designated water courses. The line runs overland in three sections:- from Krokfjellet (the meeting point of Soviet, Finnish and Norwegian territory) in the southwest to Gelsomio near Grensefoss on the Pasvik River, a distance of 6.5 km.; in the Boris Gleb area; from the latter to the headwaters of the Jakobselv. Water courses form the boundary along the Pasvik River as far as Boris Gleb and from the headwaters of Jakobselv to its estuary, where the boundary is terminated with a short section of straight lines in Barents Sea.

The exact location of the boundary along water courses is not always obvious and persons using the river can unintentionally trespass on the wrong side.^{71/} with serious consequences. Where the

71/

The maps themselves leave no doubt about the boundary. Because of several boundary violations by fishermen, the Norwegian Commissioner published a detailed account of the demarcation along waterways. See Magnus, Audun, "En Redegjørelse for aktuelle grenseforhold." (Statement of existing boundary conditions.) Sør-Varanger Avis, No. 34, May 6, 1953, pp. 1, 4.

line follows dry land the boundary survey presented no difficulties and the resulting monumetns are easily seen in the field. No attempt is made here to provide a detailed discussion of all parts of the boundary. A few locations having special significance are, however, dealt with rather more fully.

Boundary at Boris Gleb.

The Boris Gleb part of the boundary line, which the writer followed on skis in April, 1951, is a good example of the manner of demarcation on land. The following description of the line is abbreviated from field notes made at that time:

"The road to Boris Gleb (see figs. 1 and 4), after leaving Kirkenes, parallels the electrified railway from Bjørnevatn iron mines, before turning eastward. The terrain on either side of the road is quite rugged, reaching 100 to 150 metres above sea level. The road passes a small round lake on the left and continues toward Elvenes across a new suspension bridge over the Pasvik River. A narrow by-road turns off to the right (south) about a kilometre before reaching the river. We followed it for about a kilometre. This was formerly the route from Kirkenes to the village of Boris Gleb, and beyond it to the bank of the Pasvik River opposite Skoltefossen. Where it reaches Soviet territory the road is now closed by a double barbed-wire fence. The northernmost fence is Norwegian. A boundary post, painted yellow and black, stands at its righthand corner at the edge of the road. Four metres beyond it, is a second barbed-wire fence, the Russian one, with a corresponding red and

green post at the edge of the road.^{72/} To the left (east) of

72/

For official photographs of boundary posts and details of their construction, see St. prp. nr. 119 (1948), appendices 10a,b,c, 11a,b. The international boundary lies midway between each pair of posts, unless stated otherwise in the Agreement.

the road, the fence runs across some hayfields and is lost in the distance as it drops down to the Pasvik River. About 50 metres from the double fence, not far from the road, is a small Norwegian farmhouse. On the Russian side of the boundary, we could see a line of ski tracks, presumably made by boundary police, that turned off from the packed snow of the road and followed the fence toward the river. To the right of the road, where the land rises steeply and rockily immediately from the road, the fence soon ceases.

My guide and I turned sharply to the right where we had halted on the Norwegian side of the road barrier and climbed up among birch woods by an unmarked and rocky trail through the deep snow, always keeping a sharp eye open for the boundary posts on our left. As the post at the road was No. 216, we knew the next one should be 215, followed by 214, and so on. The distance between posts is not constant. From 216 to 215 it is only 23.1 metres, because of the very steep terrain, while farther on where the country is more open it is in one case 591.8 metres. The posts are so located that, when standing at any one of them, one can see the next in both directions. The 8 metre space between pairs of posts (4 metres on each side of the line) is cleared of bush or any other obstruction so that the boundary "road" can be seen clearly. After a good deal of climbing, we reached post No. 211. This is one of the "anchor points" of the whole line. It consists of a cairn originally set up in 1826, when the boundary was first demarcated, and restored in 1947 by the joint Russian-Norwegian Commission. It stands on top of an unnamed rocky hill over 120 metres above sea level. Looking back over our trail, we could follow the boundary for 618 metres to the next post, No. 212. In the other direction, post No. 210 was 180 metres away. We were not, however, able to see the village at Boris Gleb, as we moved on, aiming for post No. 208, which is also a key point in the boundary. All the boundary posts have numbers about 2 inches high. The main ones, such as No. 211 and No. 208, show up clearly, as they have a large number painted on the stone cairn, on the Norwegian side black numbers on yellow and on the Soviet side white numbers on red. We climbed to the cairn at post No. 208, and from it had an excellent view in all directions. Southwestward we looked along a string of three or four lakes toward the low country near the mine at Bjørnevatn. Almost due south we could see, through field glasses, the tall smokestack of the Soviet smelter at the Salmijärvi nickel refinery. Nearer, we could see the Pasvik River and the road on the Soviet side of it running southward to join the former Finnish Arctic Highway. To the northeast, past a small, snow-covered lake, we could see what remains of the village of Boris Gleb (Kolttaköngäs). The

village itself has apparently been destroyed,^{73/} although it

^{73/}

This probably happened as part of the Nazi "scorched earth" policy in 1944. For a photograph of the village in the 1920's, see Tanner, op.cit., part 3, plate 2. The Kolttakongås falls are shown in plate 3.

was interesting to see the small wooden church still standing. From where we stood at cairn No. 208, the boundary continued over rugged ground almost due eastward to the Pasvik River."^{74/}

^{74/}

End of quotation from author's 1951 field notes.

From the above description, the rocky and barren Boris Gleb "enclave" on the west side of the Pasvik River is clearly of little present economic use to the U.S.S.R., and is difficult to approach from the east or south. It contains no known resources; there is no settlement, and it has no strategic significance, apart from permitting the U.S.S.R. to control both sides of the Pasvik River for about 2½ kilometres.

Boundary Administration.

Discussion of day-to-day administration of this rather remote international boundary, needs to be carried on with some knowledge of the local physical realities. There is, as has been described in connection with the Boris Gleb area, no continuous "fence" between the two countries, and even where waterways exist along the border, since they are frozen in winter they do not provide any particular natural barrier.

Any fence erected, would be designed to prevent reindeer herds from crossing the boundary. Work began on such a fence around Boris Gleb in 1953.^{75/}

^{75/}

Details of the 6 km. fence were published in Sør-Varanger Avis, August 1, 1953. A similar fence is being built along the Finnish-Norwegian boundary, for a distance of about 500 km.

The 1949 Agreement between Norway and the U.S.S.R. laid down very carefully the manner in which relations along the boundary were to be carried on. All the customary relationships between adjacent countries were allowed for, and study of the published documents alone might suggest that local relationships between Norway and the U.S.S.R. were free and friendly.

On the contrary, the main impression I gathered in March and April, 1951 along the boundary supported that of an earlier visit in 1949, namely, that the purpose of the Soviet Union is to avoid, as far as possible, all contact between the two. This impression has been re-inforced by study of the local press since that time. Not only is the boundary closed, that is to say there is no move-

ment across it from either side by ordinary persons, but every effort is made to reduce official contacts to a minimum.^{76/} Norwegian

^{76/}

As early as 1947, when the official boundary survey was being carried on, personnel from one country were forbidden to stay overnight in the other country or to go more than 600 metres beyond the boundary.

officials have not found it easy to carry out all the regulations to the letter, not through any unwillingness to do so, but minor problems constantly arise where people live and work close to any international border. It is generally assumed in the Norwegian part of the Pasvik valley that there are no civilians living near the boundary in the U.S.S.R., except at such communities as the nickel-mining settlements. The Russians are said to have suggested, almost good-naturedly, that as boundary problems originate almost exclusively from the Norwegian side, administration would be simpler if all Norwegians were evacuated for a distance of 20 kilometres. While it is true that most of the problems do originate in Norway, many of them are unavoidable, since there are farms along the border and life goes on there as usual, although fishing on the river is discouraged. From time to time there are inadvertant technical violations of the border regulations by Norwegian residents. Once they come to the notice of Soviet boundary officials, the full machinery of protest is usually put into operation. This alone must be irritating to Norwegian officials, who are caught between the Soviet "fundamentalist," literal interpretation of the rules on one side and the rather carefree ways of Norwegian democracy on the other.^{77/}

^{77/}

In an effort to educate Norwegians to understand the serious consequences of border violations, the head of the Norwegian Boundary Commission has published a careful explanation of the Treaty. See Magnus, op.cit.

I have yet to meet a Norwegian official who reported any particular friendliness between Russians and himself at their occasional conferences, although press reports indicate that some Norwegian trespassers have been treated civilly. As has been stated, there is no normal intercourse across the boundary. No bridges link the two countries across the Pasvik River, no customs houses are operating, there are no immigration inspectors, and there is at present no provision for legal movement between the two countries. The only direct communication locally between Norway and the U.S.S.R. is by a small group of officials on each side.^{78/} The 1949 Treaty laid

^{78/}

But note statement of alleged Soviet espionage in the Kirkenes area from Police Chief Madss, Nov. 15, 1953 in Sør-Varanger Avis, Nov. 18, 1953.

down very carefully the composition of the two official Boundary Commission, the duties of officials and the limitations under which they may act without reference to their Foreign Offices.^{79/}

79/

Over. med Fremm. Stat., Nr. 1, 1951. (Agreement ratified at Oslo, June 30, 1950.)

At Kirkenes and at intervals along the Norwegian side of the boundary, announcements of the border regulations are posted prominently. The title of one in use during 1951 reads:- Announcement To All Who Live In Or Travel In The Boundary District. It is signed by the Norwegian Boundary Commissioner for the Norwegian-Soviet frontier. It quotes as authority, Royal Resolutions of November 7, 1950, and a law of July 14, 1950, and warns that any infringement of the regulations will incur the severest penalties, including up to three months imprisonment. The arrangement is a greatly abridged version of the regulations published in full in the Agreement already mentioned. It is too long to quote here, but a few clauses will be mentioned to indicate the nature of its contents. For example; it is illegal to cultivate the ground or put up any buildings in the border strip which extends four metres on either side of the boundary line. It is likewise illegal to search for or exploit minerals within 20 metres of the line without written permission from the Norwegian Boundary Commissioner. It is also illegal to shoot across the boundary or to have anything to do with persons, animals,^{80/} or any objects on the other side. Rude remarks

80/

This rule explains the consternation of a Norwegian who saw his herd of 200 reindeer crossing the frozen Pasvik River to the Soviet side. Unable to cross to head them off, he "barked like a reindeer hound,"--and fortunately they returned of their own accord.

may not be shouted across the line. It is of course illegal to cross the boundary on land, by water or in the air without written permission from the Norwegian Boundary Commissioner. There are detailed regulations governing the movement of boats in the boundary waters, the use of it for timber floating, and so forth. While vessels are allowed to take refuge on the "other" side of the line if forced there owing to bad weather, no vessels may travel on the boundary waters within 200 metres of the line except in broad daylight. They are not allowed to anchor in the channel. All vessels must be registered and marked clearly by numbers and with the Norwegian national colours. Photographing of the territory of the Soviet Union is completely forbidden and the use or possession of photographic apparatus within one kilometre of the boundary is illegal.^{81/} Those who fish in the boundary waters may not use explo-

81/

The author took no photographs within the Pasvik valley itself. Those used with this report antedate the present boundary regulations.

sives to do so, may not fish with lights, and may not carry on

fishing in the dark (which of course excludes long periods during winter in these latitudes).

The consequence of these and other regulations has been that most local Norwegians have a healthy respect for the Soviet border and stay as far away from it as they conveniently can.^{82/} When dis-

82/

A fillip has been given to the local tourist industry by visitors arriving at Kirkenes "to see the iron curtain." This has increased the difficulties of the Norwegian authorities since the camera-laden tourists sometimes fail to appreciate the gravity of breaking the boundary regulations. The extreme of tourist folly occurred in July, 1953 when an Australian souvenir-hunter pried the official Soviet emblem off a boundary post near Kirkenes.

cussion between the Boundary Commissioners is unavoidable, they meet at Storskog village, a few kilometres east of Boris Gleb. The need for such a conference by either side is signaled by raising a flag; and the presentation to the border guard within two hours of a written request suggesting a time of meeting. The Soviet Union has erected a special "Conference Hall" on its side of the line, but Norway has not yet done so. The two small groups of representatives, each with an interpreter, complete the business as expeditiously as possible. A typical press announcement of such a meeting is headed: "Ten minute boundary meeting Monday." Anything they are unable to solve locally, they refer to their governments.^{83/}

83/

When a Norwegian fishing vessel from Sør-Varanger strayed into Soviet waters near Murmansk late in 1951, the Soviet Boundary Commissioners at first even refused to discuss the matter, as beyond their competence. They urged local Norwegians to use the official channel by way of Oslo and Moscow. However, a precedent for local settlement of such maritime matters was eventually established. When in January, 1954 a Soviet fishing vessel was apprehended for trespassing in Norwegian waters near Vardø, the local court tried the offenders, fined them and released the vessel. Tromsø, Jan.22, 1954.

The Police Chief in Kirkenes (responsible for the Sør-Varanger district) is in charge of the 24-man Norwegian boundary patrol, who travel on skis in winter, use boats or automobiles, or go by foot in summer. There are also a number of other government officials scattered along the boundary, varying from the few inactive customs officers, to several forestry inspectors. There is also a small defence force. The main object of these officials is to prevent Norwegians from infringing the border regulations. The U.S.S.R. boundary guards see to it that Soviet citizens do not violate the boundary.

One consequence of the closed boundary has been a disruption of the traditional east-west trade between Norway and Russia. Prior to the Russian Revolution there had been a substantial importation into Finnmark of Russian grains, flour, rope, tar, tallow, linen and other

products of the fertile areas of the Dvina valley south of Archangel, in exchange for Norwegian salt and dried fish.^{84/} Russian trading

84/

For a good description of this Norwegian-Russian trade in 1830 see Stagg, op.cit., pp. 185-6. The Russian traders were known as "Pomors." They used a local Russian-Norwegian dialect in carrying on business.

vessels were welcomed at large and small ports as far west as Hammerfest. Although following 1920 the Finnish Petsamo region did not provide so lucrative an exchange, the trade with North Norway up to 1939 was still considerable. There was also the additional trade due to tourists reaching Finnish Lapland by road from the south. One reason why local Norwegians regret the loss of Finns as neighbours in the Pasvik valley is that there were no customs duties in Finnish Lapland, so that Norwegians benefitted considerably from low prices on imported goods. The lack of the east-west exchange of goods across the border is today something of a local grievance on the Norwegian side of the international boundary.

Present Soviet policies, however, lead to more serious dislocations. The Pasvik valley is one of the few relatively fertile areas in the far north of Scandinavia and is especially valuable for its lumber. This was formerly floated down the river to the Pasvik Timber Co. Sawmill at Jakobsnes near Kirkenes, said to have been among the largest in Scandinavia.^{85/} The 1949 Agreement technically permits

85/

Grøvlen, Kaare, op.cit., p. 28.

all the normal uses to which the Pasvik River might be put, but it is in fact not used for lumber floating or large-scale fishing. The many small waterfalls and large lakes, make the Pasvik an excellent potential source of hydro-electric power. However, as the abortive discussions of 1945 about Boris Gleb showed, any international development seems at present improbable. The U.S.S.R. controls the Niskakoski outlet dam of the main reservoir which is Lake Inari in Finland and operates the Jäniskoski hydro-electric plant nearby.^{86/}

86/

Main source of power for the nickel mine and refinery.

Norway, apparently feels nothing is to be gained at present by suggesting joint study of power development on the international section of the Pasvik, although there is urgent need for more cheap power at Kirkenes and Bjørnevatn.^{87/}

87/

Norway controls both sides of the Pasvik River at Grensefossen, a potential source of power, but the falls extend upstream into the U.S.S.R., while downstream the river is international.

The Agreements between Norway and the U.S.S.R. do not call for

the establishment of a joint authority for controlling boundary waters, such as the International Joint Commission of Canada and the United States established in 1909.^{88/} If such a commission had ex-

88/

Use of boundary waters is referred to at length in Chapter 2, Articles 7-15 of the Soviet-Norwegian Agreement of Dec. 29, 1949. Chapter 2 is headed, "Boundary waters and Rules governing their use (movement of vessels, floating of lumber, fishing, etc.)."

isted, the drying up and later flooding of the Pasvik in 1950 due to construction work at Jäniskoski would have been impossible, as would the very grave floods of May and June, 1952 when parts of the Pasvik valley in Norway (and doubtless in the U.S.S.R.) were seriously flooded. "Båt må brukes mellom noen hus i Pasvikdalen,"^{89/} (Boats have to be used between some houses in the Pasvik valley), was a typical newspaper headline. Houses, especially those near Skrotnes were flooded. More than 40 Norwegian farms were partly under water and four or five were badly damaged. Local opinion in the Norwegian part of the Pasvik valley claims that recurring floods since 1945 have been due to engineering works at Jäniskoski and Niskakoski. They point out that the abrupt fall in water level after a serious flood can only be caused by closing the Inari dams. The Soviet Union has complete control over these dams^{90/} which are apparently operated as part of "Petchenga Nickel." The serious damage caused in Norway during 1952,^{91/} led the Norwegian Foreign Office to ask the Soviet

89/

Tromsø, June 7, 1952.

90/

See "Overenskomster med Fremmede Makter," Helsinki, 1947, No. 9, p. 96.

91/

See official appraisal in Sør-Varanger Avis, No. 49, June 26, 1953.

Union for discussions between the three powers concerned. The request was repeated at intervals during 1952 and early 1953. Public opinion in the Kirkenes area is increasingly critical at the lack of any results. Until a tri-nation enquiry is held there must remain some doubt as to the true cause of the sudden floods, meanwhile an elementary precaution would be for Soviet officials to inform Norway in advance of proposed changes at the control gates south of Grensefoss. This kind of collaboration was in fact foreseen when the boundary Agreement was drawn up, and provision was made for such discussion. "The contracting parties' proper authorities, shall as far as possible regularly exchange information about water level and flow and about ice conditions in the boundary waters which can help to prevent damage which might arise as a consequence of flooding or ice-movement."^{92/}

92/

Op.cit., 1949, Chap. II, Article 15. Hydro-electric operators

never let unused water escape downstream if it can be avoided. Hence it is possible that the Jäniskoski power plant and the Niskakoski control dam are incapable of holding back Inari waters when at their peak.

Finland and the New Boundary.

One very serious consequence of the 1944 boundary change is that Finland has been deprived of direct access to the shores of Barents Sea. This greatly increases the difficulty of developing Finnish Lapland--if only because of the high cost of importing fuels, food stuffs and building materials by way of the railway as far north as Rovaniemi and then the long additional haul by road. Access from the north could be provided even now by extending the Norwegian road in the Pasvik valley (route 955 now only reaches as far south as Nyrud) to meet the former Finnish Arctic Highway No. 4 at Virtaniemi near Lake Inari. This would face considerable topographic difficulties, including bridging the Pasvik River where it is very wide. Since 1945 an alternative overland route from northern Finland to the Varanger Fjord coast at Neiden has become increasingly popular with local Lapps and other residents of Finland. This is a traditional route and there is an old Greek Catholic church at Neiden to recall earlier Russian (Finnish)-Norwegian ties. In January, 1954 a Finnish snowmobile tested a route from Inari village on route No. 4 to a point near the international boundary not far from Neiden. The route ran across easy terrain, much of it on frozen waterways. A regular bus service connects route No. 4 with railroad at Rovaniemi. From there good railway connections provide a link with Oslo by way of Haparanda and Charlottenberg. The whole journey takes from 2½ days-3 days, and could provide the fastest winter connection between Kirkenes and Oslo with a saving of about 2½ days. It is possible that a joint Norwegian-Finnish commercial enterprise will be set up to handle the movement of lumber from the Inari district of Finland to the seacoast, and the return movement of fuels, foodstuffs, building materials, etc. Various possible routes have been suggested. That by way of Neiden has advantages, among them good shipping conditions in Varanger Fjord. A route by way of Finnish Highway No. 4 and Karasjok, Norway to the head of Porsanger Fjord was tested in 1953--when logs were shipped from Inari to the Netherlands. Only if Soviet-Norwegian relations improve to the extent of freeing the border waterway completely, is Finnish traffic likely to use the far easier route by the Pasvik valley.93/

93/

Rumors have been current in Norway that Finland may be inclined to cut its losses in the far north, and agree to turn Finnish Lapland over to the U.S.S.R. in return for restitution of parts of Karelia. This seems highly improbable, but the mere suggestion could alarm planners of N.A.T.O. defense policies. Finnish Lapland reaches to within 25 miles of the Norwegian coast at Lyngen Fjord.

Soviet Ownership of "Petchenga Nickel."

A concession to mine and refine nickel near the international boundary in the Pasvik valley led to negotiations between Finland

and the Soviet Union, and, indirectly, with Norway. One consequence was relocation of the international boundary in the upper Pasvik valley.

Before World War II the International Nickel Company of Canada owned, through a subsidiary, the Mond Nickel Company, concessions to mine and refine nickel in the Petsamo district of Finland. The concessionaire, Petsamon Nikkeli O/Y, began exploratory work in 1934 and had by 1939 established a mine at Kolosjoki (Fig. 3) while a refinery was approaching completion. Electricity was to be provided from a 37,500 H.P. hydro plant at Jäniskoski on the Pasvik River in Finland.^{94/}

94/

Yates, A.B., "Petsamo, Outpost of Copper Cliff," Inco Triangle, Feb., 1937, pp. 6,7. "We Visit Arctic's Electric City," Illustrated, Sept. 16, 1939, pp. 7-12. Lapland, Short Guide for Tourists, Helsinki, 1938, pp. 71-2.

During negotiations between the Soviet Union and Finland following termination of the winter war of 1939-40, Finland had been urged to transfer ownership of the company's assets to a joint Finnish-Russian company and to resume operation of the mines.^{95/} No decision was reached at that time. The Petsamo area was transferred to the U.S.S.R.^{96/} following the 1944 Armistice between Finland and the Soviet Union (and Great Britain). As the nickel concession in the area was now in U.S.S.R., a protocol was signed between the U.S.S.R., Canada and Great Britain, recording the purchase of the nickel properties by the U.S.S.R.^{97/} The U.S.S.R. agreed to pay Canada as agent for the International Nickel Company, \$20,000,000 over a period of six years. A subsequent agreement altered the period payment of the balance still due in 1947.^{98/}

95/

See details of the exchange of arguments in Official Blue-White Book of Finland, 1941, pp. 22 et. seq.

96/

Sept. 19, 1944. See Finland Yearbook, 1947, pp. 74-75. Its terms were incorporated in the Treaty of Paris, Feb. 10, 1947.

97/

Signed at Moscow, Oct. 8, 1944. Published in Canada Treaty Series, No. 29, 1944.

98/

Supplementary Protocol signed at Ottawa, September 29, 1947. On December 31, 1951, \$2,916,625 of the amount remained unpaid. (Annual Report, International Nickel Company of Canada, Ltd., year ending Dec. 31, 1951, pp. 18-19.) Discussions were then going on over a Soviet request that the balance due should be paid in sterling. In August 1953, the balance was still outstanding.

Subsequent relocation of Finnish-U.S.S.R. Boundary.

A postwar modification in the Soviet-Finnish boundary in the Pasvik valley has received little attention and yet is of consid-

erable political and economic significance. It was of course not included in the 1944 Armistice, nor in the Paris Peace Treaty of 1947. It was in a technical sense not a part of the postwar settlement at all. The writer first became aware of the altered boundary when travelling in the Pasvik valley in August, 1949. It proved impossible to go southward from Norwegian road No. 955 at Nyrud to join Finnish route No. 4 as had been planned. In 1951, he was able to confirm that a change not generally shown on maps had been made, and to secure a copy of the official Agreement and map showing the correct location of the border. The change was due to surrender of additional Finnish territory to U.S.S.R. and for this reason: Although the Petsamo Nickel Company mine and refinery became Soviet property by the Armistice Agreement and Protocol with Canada of 1944, the ruined hydro-electric plant at Jäniskoski was not referred to specifically, and as it lay outside of the Petsamo administrative district, it remained in Finland.

As has already been shown (St. prp. nr. 119, 1948, p. 83), the Soviet Union anticipated developing a new hydro-electric site at Kolttaköngäs (Boris Gleb), and so informed Norway in 1945. As the Norwegian government preferred to discuss the joint development of all boundary waters, the Soviet Union apparently fell back on use of the original Jäniskoski site, still in Finland. As a consequence, the Soviet concluded two additional Agreements with Finland on Feb. 21, and April 25, 1947.^{99/}

99/

Finlands Författningssamlings Fördragsserie. Överenskommelser med Främmande Makter, 1947, N:o 8-9. N:o 8. (Finlands författningssamling n:o 304/1947.) Lag--om bringande i kraft av Överenskommelserna angående införlivande med Rådunionens område av Jäniskoski och Niskakoski område samt användande av de i Finland befintliga, på Rådunionen överförda tidigare tyska tillgodohavandena. (Given i Helsingfors den 21 februari 1947.) Finland's Statute Book Report Series, Agreements with Foreign States, 1947, No. 8-9, No. 8. (Finland's Statute Book No. 304/1947.) Decree--bringing into effect agreements concerning incorporation in the Soviet Union of sites at Jäniskoski and Niskakoski along with transfer of former outstanding German debts in Finland by the U.S.S.R. (Given in Helsingfors February 21, 1947.)
N:o 9 (Finlands författningssamling n:o 305/1947.) Förordning--samma som öfver nämnd. (Given i Helsingfors den 25 april 1947.)
No. 9 (Finland's Statute Book No. 305/1947.) Decree--same as above. (Given in Helsingfors April 25, 1947.)

The first stipulated that an area of 176 sq.km. be transferred to the Soviet Union against payment of 700,000,000 Finnish marks to be deducted from former German assets in Finland, which had been transferred by decision of the Allied and Associated Powers to Russian ownership. This transfer of territory carried with it the part of the Pasvik River between Lake Inari and Norway in which pre-war hydro-electric development had taken place.

The second Agreement stipulated, in Articles 1 and 3, and in the Protocol annexed to it, details about the reconstruction of

the Jäniskoski power plant and Niskakoski control dam. The work was to be done by Finnish contractors and also paid for from the assets already mentioned, and not out of war reparations. This work was completed in the spring of 1951, at which time the first electricity reached the nickel mines. A second hydro-electric plant was started early in 1952, near the Norwegian border at Grensefossen. It is also being constructed by a Finnish company.^{100/} There is some question

^{100/}

Contracters are Imatra Kraftbolag. Location of the plant is shown on Fig. 6. It can be seen from Norway. The project has done much to relieve unemployment in nearby Finnish areas.

about the need for this second hydro-plant to provide power at the nickel refinery. The suggestion has been made that it is to be used to electrify a new railroad or for other developments in the Petsamo area.

Conclusion.

One consequence of the loss of territory by Finland in 1947 is that the Soviet Union now controls the upper course of the Pasvik River from where it leaves Lake Inari (above Niskakoski) to the Norwegian frontier at Rajakoski (Fig. 7). As has already been shown (p. 25), there is U.S.S.R. territory on each side of the river for a short distance at Boris Gleb (Fig. 4). Both banks of the river are Norwegian territory for a very short distance downstream from Rajakoski, and also from Boris Gleb to where the Pasvik enters the sea east of Kirkenes. The remainder of the Pasvik River is international waters.

While the Jakobselv is also an international watercourse, in this case the river has no appreciable economic significance. The Pasvik, on the other hand, as has been shown, is a natural route northward from Finland, has valuable hydro-electric potential and has the added advantage of useful lumber resources and good farmland.

There would seem to be good reason for the two countries to work together to eliminate the present political barriers to economic development in the valley. This should not be difficult in view of the long tradition of Russian-Norwegian trading in the area. Although the possibility of any Soviet relaxation of its present rigid attitude may appear slight, it is worth recalling that the only similar boundary in eastern Europe, the one between Turkey and Soviet Armenia, follows the Aras River whose waters are utilized by both countries, the cost of engineering works being shared between them.^{101/} Any change in political conditions within the Pasvik

^{101/}

For details of Agreement on payment for irrigation water, see New York Times, Sept. 16, 1953, p. 7e.

valley will, however, come about as a part of Soviet foreign policy as a whole, and is unlikely to be influenced by local events in northern Norway. At the time of writing (February, 1954), the required change in international political climate does not seem important.

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Moscow: Den blandete sovjetisk-norsk kommisjon for merking av riksgrensen mellom SSSR og Norge, Moscow, 1947, scale: 1:25,000. Contour interval 10 m., 18 sheets. (International boundary, showing all boundary posts, etc. to within 1 km. of the line.)

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Norges Geografiske oppmåling, Finnmarkens Amt, 1907, scale: 1:500,000, 1950. (General map of Finnmark county)

Norges Geografiske Oppmåling, Gradteigskart, scale 1:100,000, sheets, Karpelven, Svanvik, Vaggetem, Krokfjeld, Jarfjorden, Neiden. (Topographic map of Norway)

Norway, Kongelige Norsk Automobilklub, Veibok 1949, Oslo. (Automobile route book)

USAF Aeronautical Chart and Information Service, World Aeronautical Chart, scale: 1:1,000,000, Lake Inari (51), May, 1952.

PLACE-NAMES IN BOUNDARY REGION

Local place-names are confusing because of the several languages used. Norwegian, Lapp and Finnish names predominate, with the addition of Russian transliterations of all three, and (on 1941-45 military maps) German transliterations. Changes in Norwegian spellings are an added complication.

Because many of the names are descriptive, they provide clues to the local topography. A few common topographic terms are listed below.

English	Finnish	Lapp	Norwegian
bay, gulf, cove	lahti	luokte	bugt, bukt, vaag
boundary	raja	ragje	grense, grænse
cape, point of land	niemi	njarg	nes, næs
cataract, rapids	koski	kártja	stryk
church	kirkko		kirke
county	lään		fylke
fjord	vuono	vuonn	vik, fjord
forest, woodland	metsä	roavve	skog
fortress, castle	linna	vuovdde	borg
heath	kangas	kielos	mo
hill	mäki	vaara	bakke
island	saari	suelo	ø, øy, holm
isthmus	kannas	muotka	eid
lake	järvi	luobbal, jaur	vatn, vann
mine	kaivos		grube
moor	nummi		myr
mountain	vuori	oaive, tjakkó	fjeld, fjell
peninsula	saarento, niemimaa		halvø, halvøy
ridge, esker	harju	asse	ås, ass, rygg, ryg
river, stream	joki	jokk	elv
strait, sound	salmi	nuorra	strede, løp
upland tundra	tunturi	varr	vidda

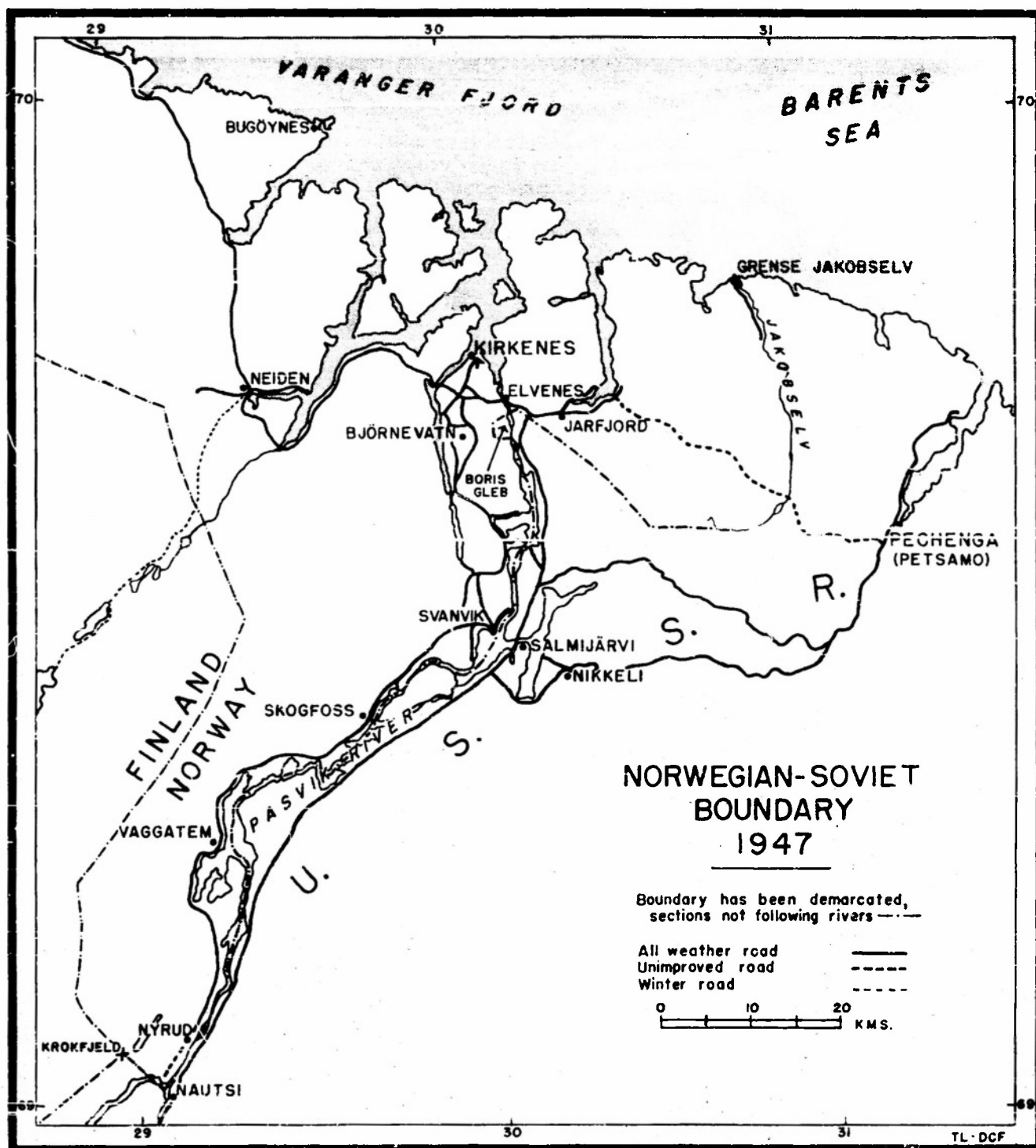


Fig. 1

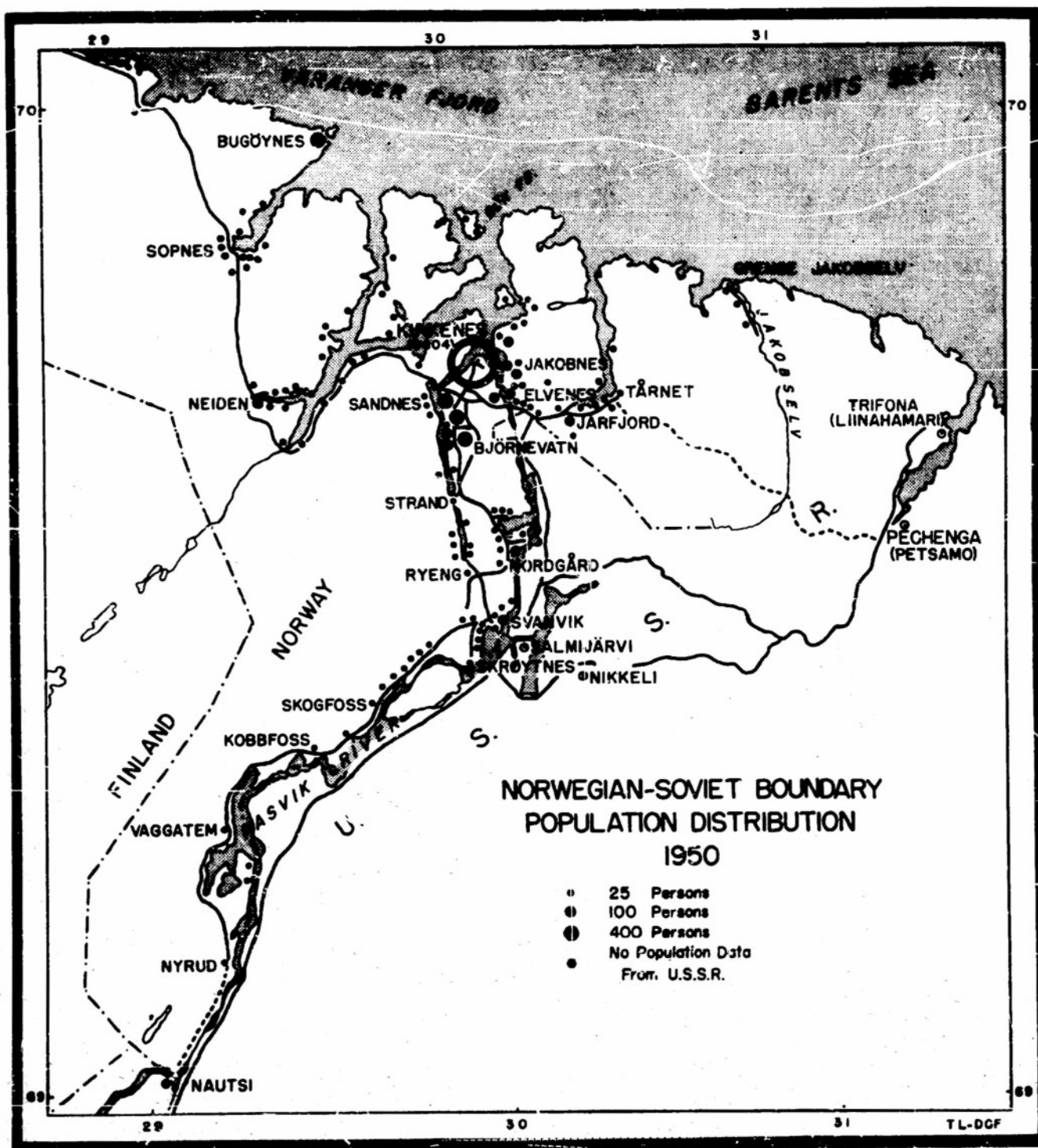


Fig. 2

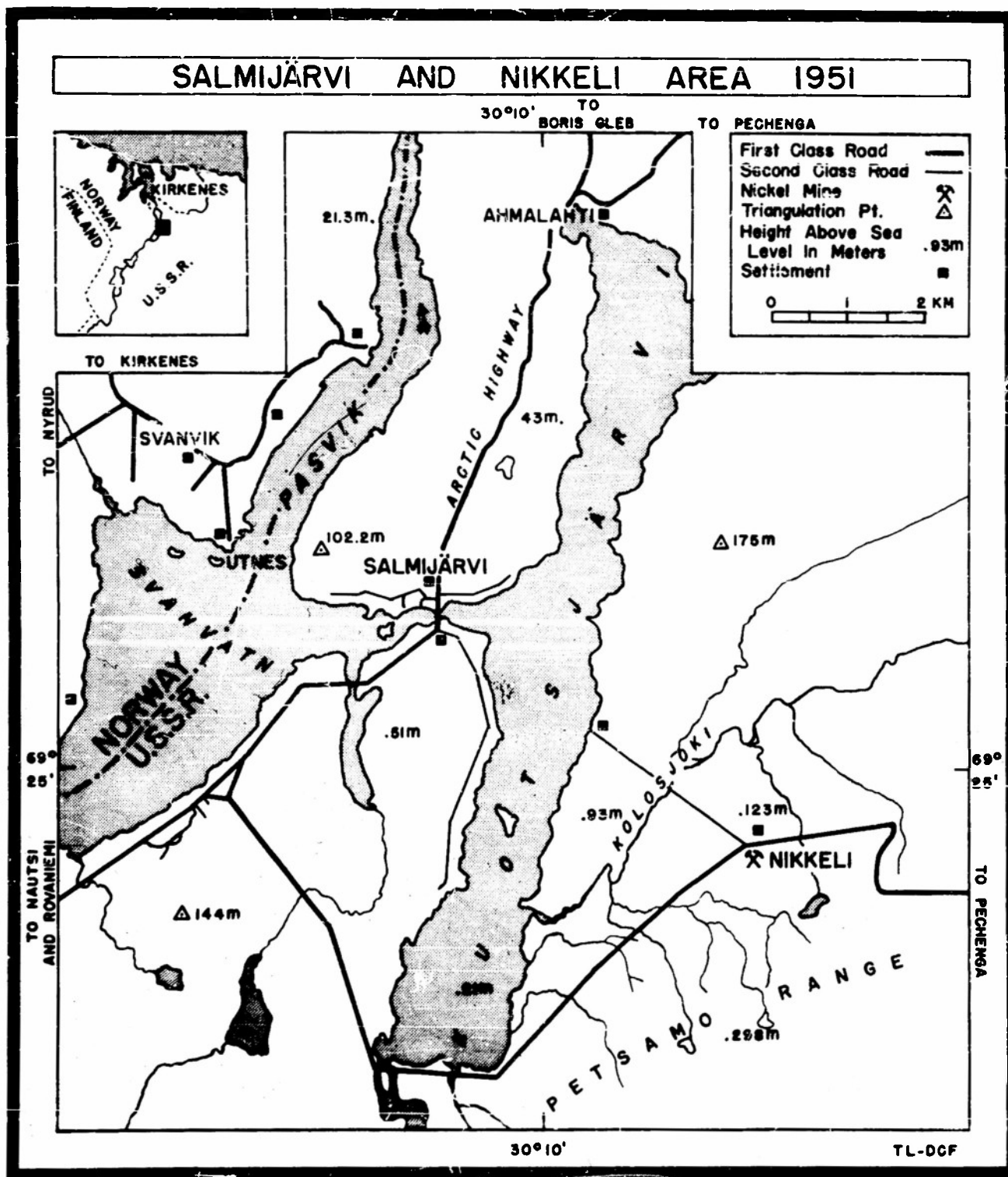


Fig. 3

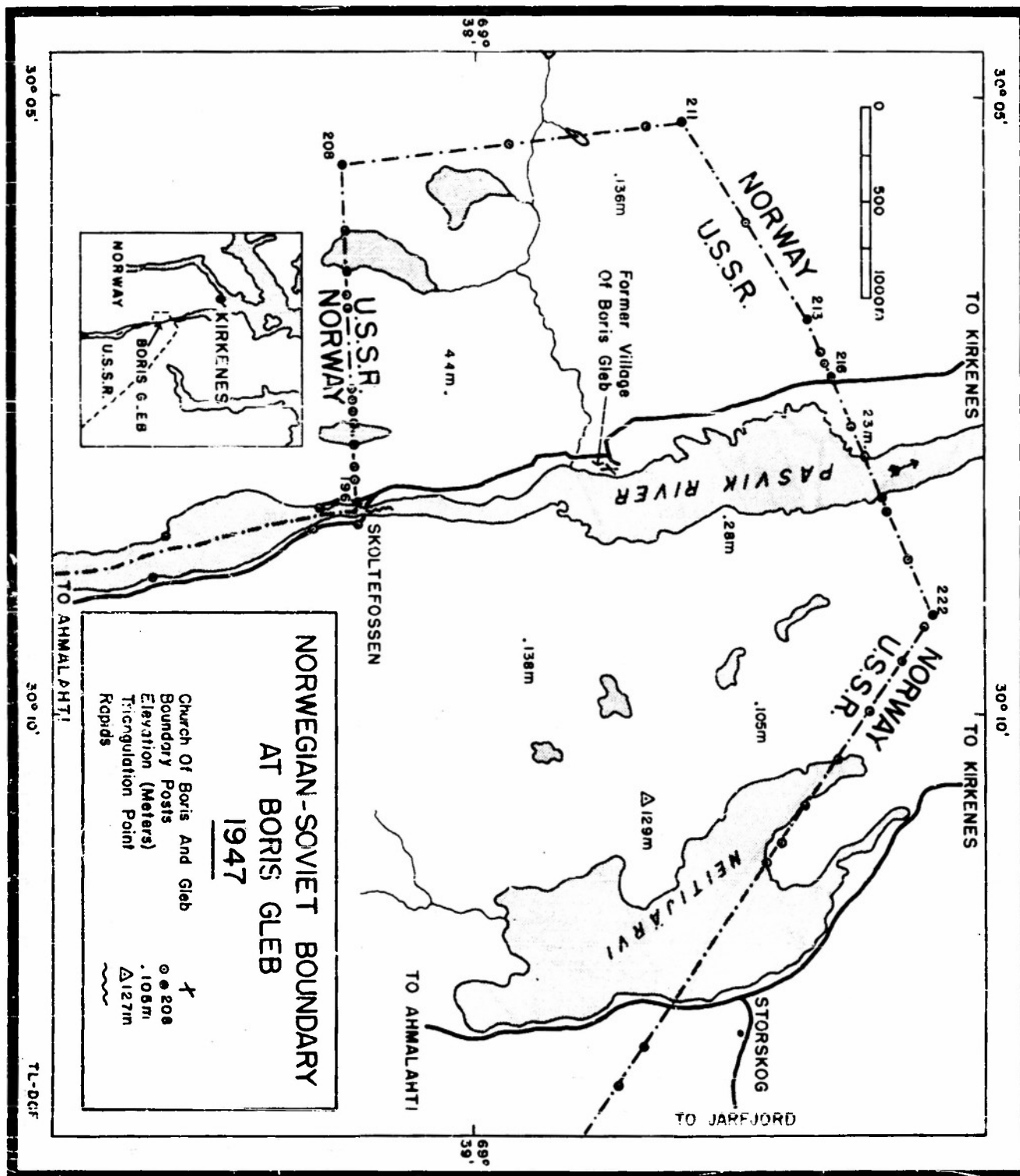


Fig. 4

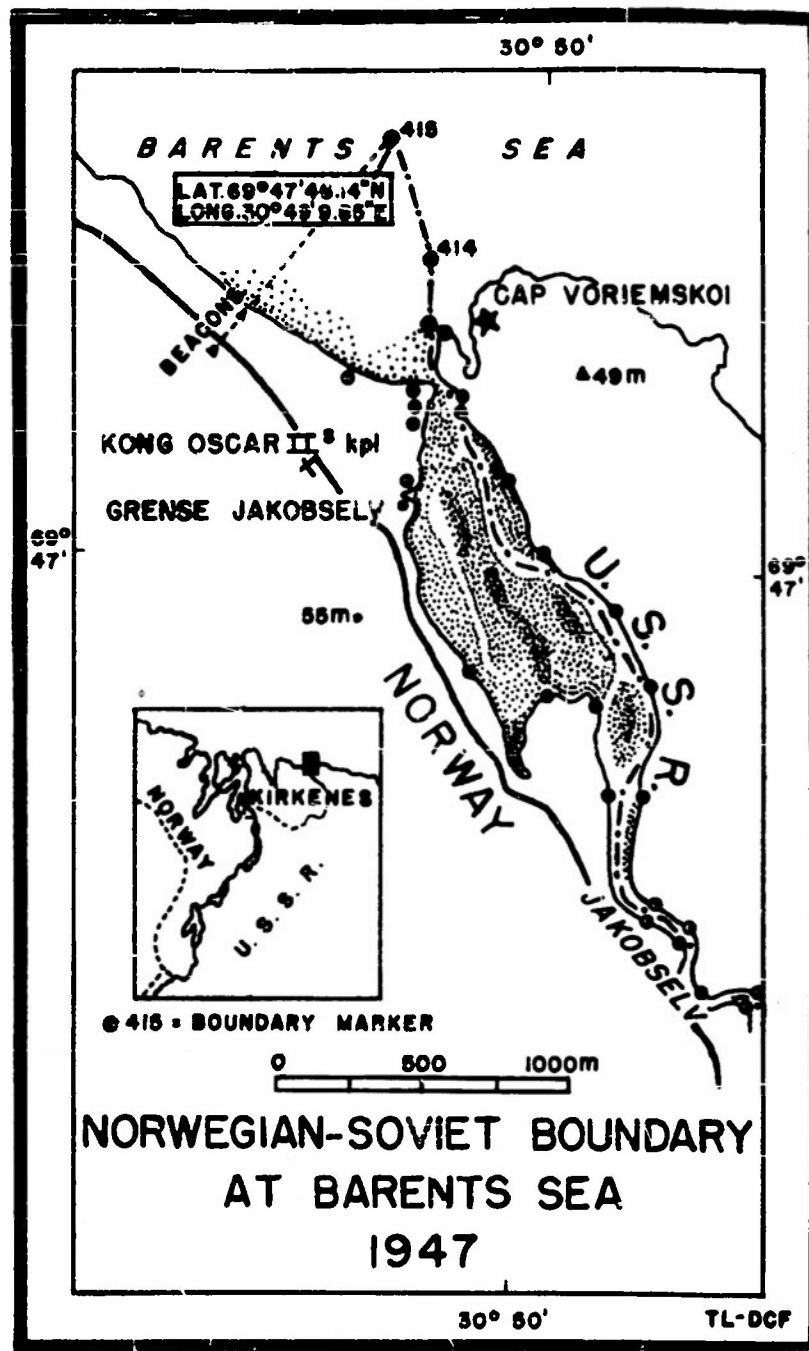


Fig. 5

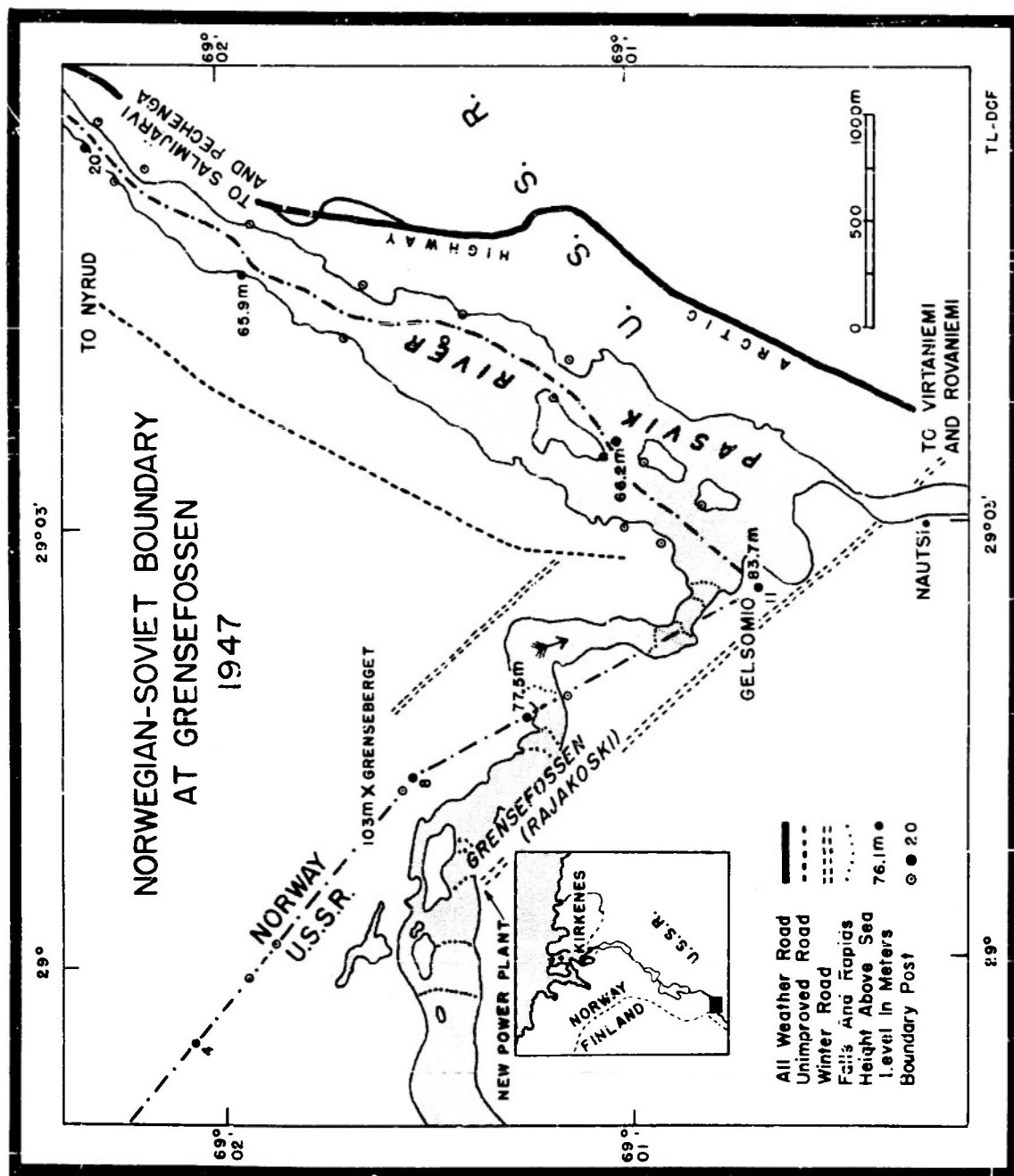
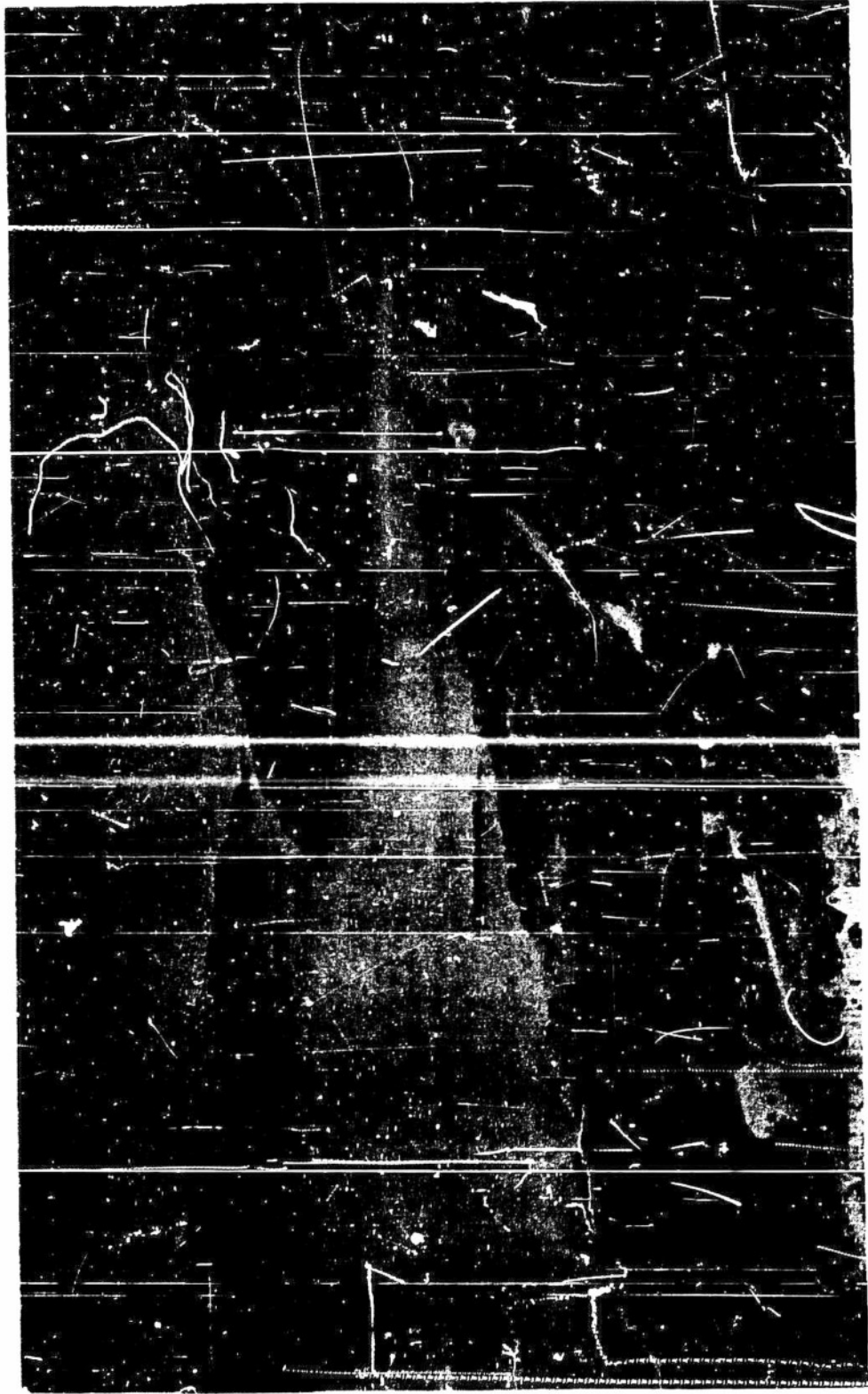


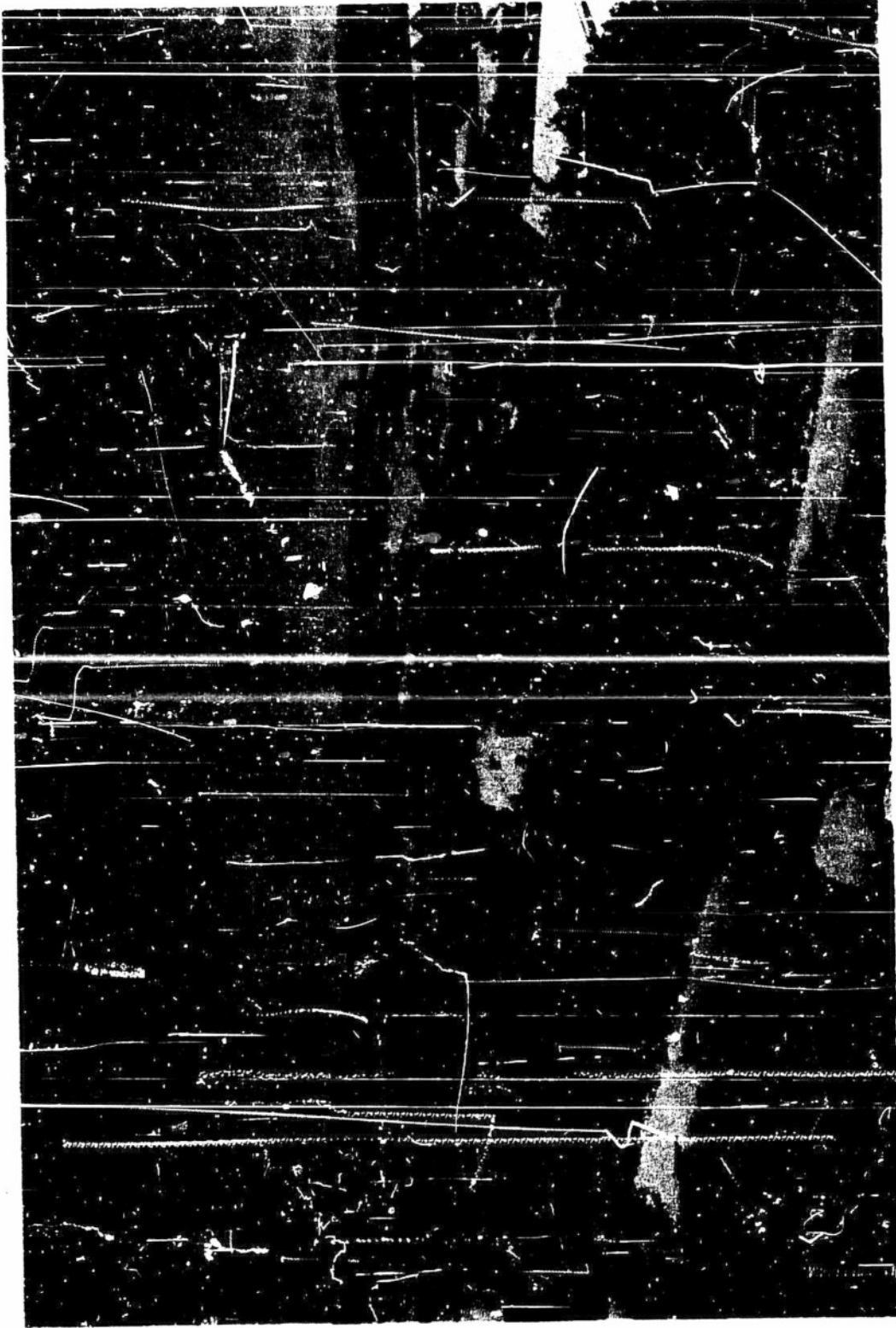
Fig. 7



Jarfjord. Coastal scene east of Kirkenes



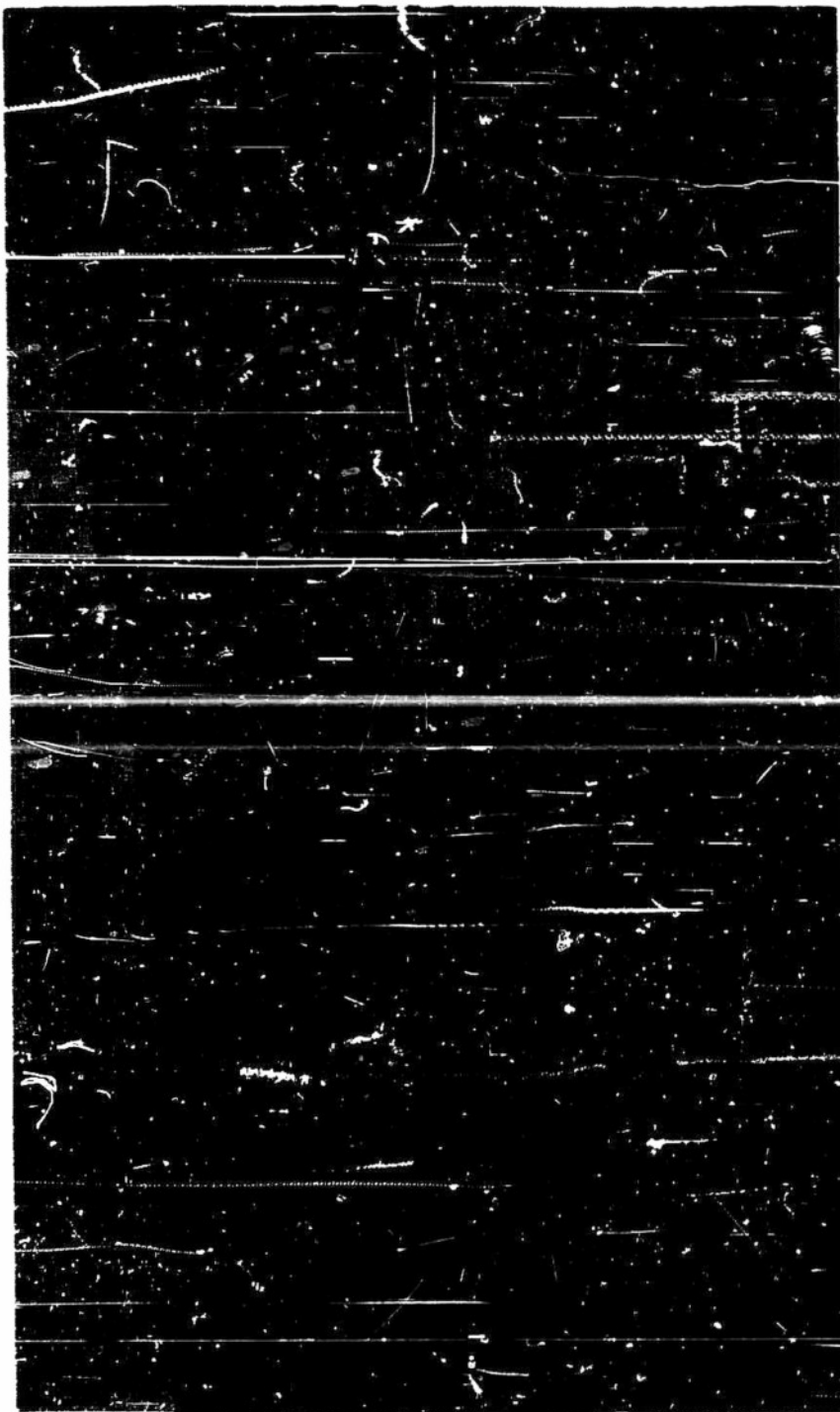
Kirkenes. View of settlement looking north



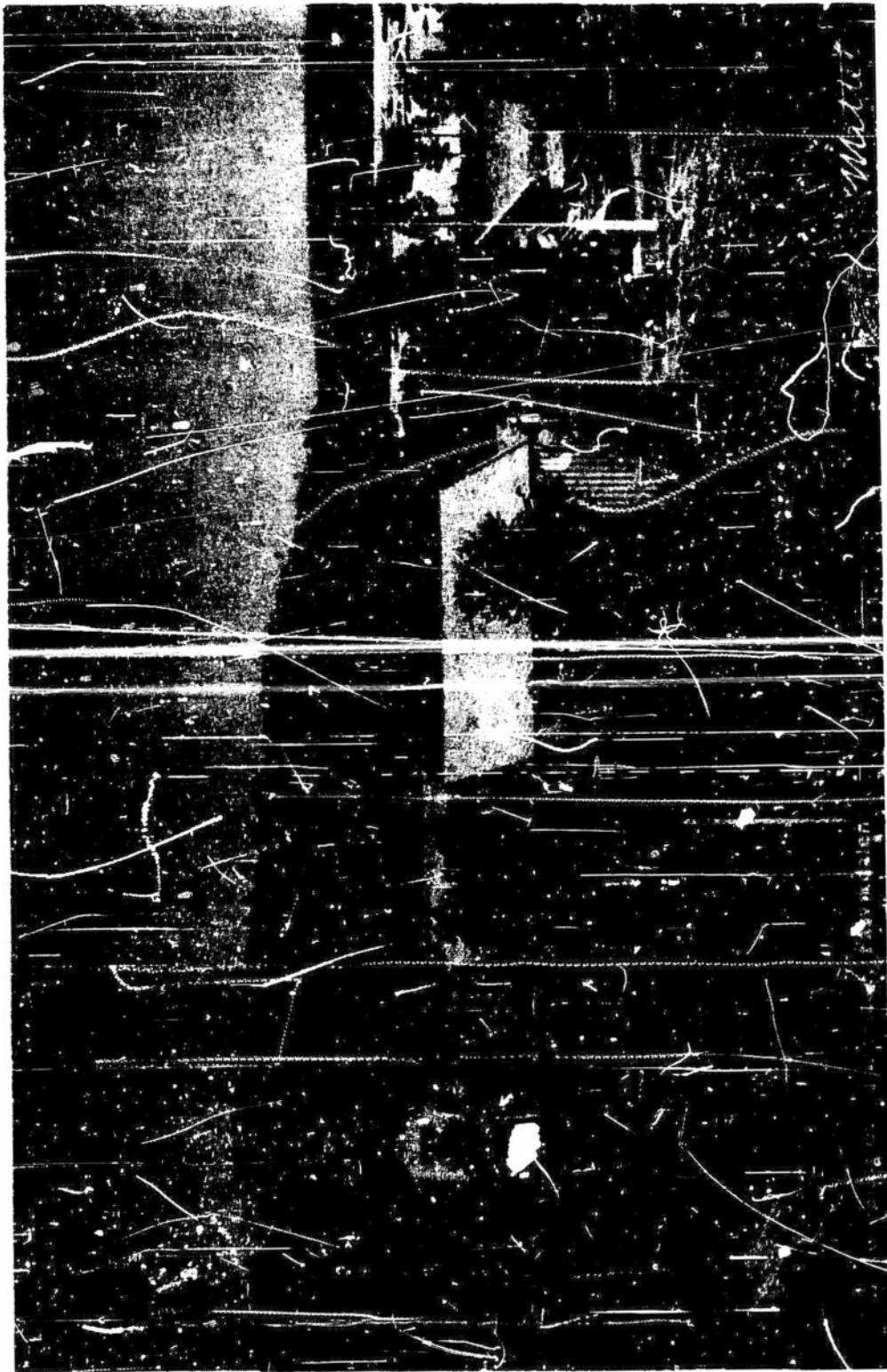
Kirkenes. Iron-ore plant looking southwest.



Björnevatn. Iron-mining village during reconstruction.



**Skogfoss. Rapids on Pasvik River looking from Norway
towards Soviet Union**



Skogfoss Inn. Looking from Norway across Pasvik River
towards Soviet Union

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